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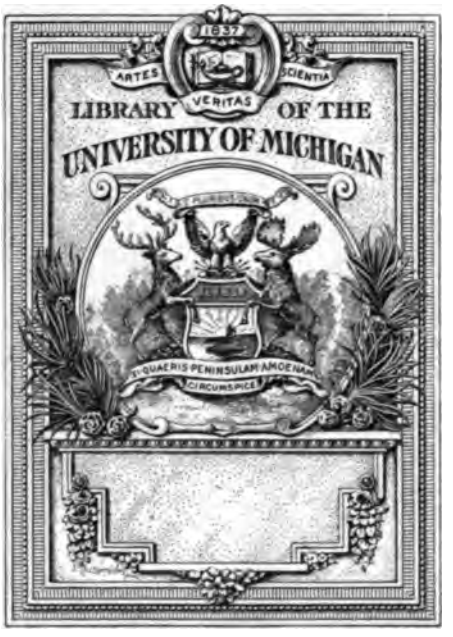

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FOREIGN MARKETS

FOR THE SALE OF

AMERICAN COTTON PRODUCTS

BY SPECIAL AGENTS W. A. GRAHAM CLARK, WILLIAM WHITTAM, JR., CHARLES M. PEPPER, HARRY R. BURRILL, ARTHUR B. BUTMAN, PROF. LINCOLN HUTCHINSON, CONSUL-GENERAL GEORGE E. ANDERSON, AND CONSUL JAMES E. DUNNING.

DECEMBER 9, 1907

Referred to the Committee on Commerce and ordered to be printed

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1907

DEPARTMENT OF COMMERCE AND LABOR,
OFFICE OF THE SECRETARY,
Washington, December 5, 1907.

SIR: I have the honor to transmit herewith report on foreign markets for the sale of American cotton products by Special Agents W. A. Graham Clark, William Whittam, jr., Charles M. Pepper, Harry R. Burrill, Arthur B. Butman, Lincoln Hutchinson, and others, in compliance with the act making appropriations for the legislative, executive, and judicial expenses of the Government for the fiscal year ended June 30, 1907, approved June 22, 1906, which directs that results of investigations by special agents to inquire into trade conditions abroad shall be communicated to Congress.

Respectfully,

OSCAR S. STRAUS, *Secretary.*

The PRESIDENT OF THE SENATE.

NOTICE TO MANUFACTURERS.

Many samples of cotton cloths of almost every description were collected by the special agents of the Department of Commerce and Labor in the countries visited by them and are now in possession of the Bureau of Manufactures. These samples represent the fabrics in use by the people for clothing and household purposes, and are accompanied by full data explaining countries from which exported, size and quality of fabrics, peculiarities of manufacture and packing, popularity of patterns, wholesale and retail prices, etc. In addition to cloths, the Bureau of Manufactures is in possession of samples of yarns, braids, towels, handkerchiefs, laces, etc. Collections were made in Africa, Australia, Brazil, China, England, India, Italy, Japan, and Turkey. The samples will be loaned to manufacturers who may apply for them. Applications should state country in which interested and class of samples desired.

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LETTER OF SUBMITTAL.

DEPARTMENT OF COMMERCE AND LABOR,
BUREAU OF MANUFACTURES,
Washington, March 19, 1907.

SIR: The legislative, executive, and judicial appropriation act for the fiscal year ending June 30, 1907, directs the Department of Commerce and Labor to investigate trade conditions abroad with the object of promoting the foreign commerce of the United States and to specially investigate markets for the sale of cotton products. Under this authority Messrs. W. A. Graham Clark and William Whittam, jr., were appointed to make the special inquiry. Preliminary reports giving results of their investigations were published from time to time in Daily Consular and Trade Reports. These, together with others that have not been published, have been assembled and constitute the bulk of the volume herewith submitted. To the reports of the two agents named have been added reports of Special Agents Charles M. Pepper, Harry R. Burrill, and Arthur B. Butman, Consul-General George E. Anderson, of Rio de Janeiro, Brazil, Consul James E. Dunning, of Milan, Italy, and Prof. Lincoln Hutchinson, a former special agent of the Department, who made incidental investigations into markets for the sale of cotton products.

Very respectfully,

JOHN M. CARSON,
Chief of Bureau.

To Hon. OSCAR S. STRAUS,
Secretary of Commerce and Labor.

FOREIGN MARKETS FOR AMERICAN COTTON PRODUCTS.

INTRODUCTORY.

The United States produces about two-thirds of the cotton grown in the world, but it supplies only a little over 6 per cent of the total exports of the manufactures of cotton by the various nations. This shows the great need of paying closer attention than has been done in the past to the cultivation of foreign markets for cotton goods. Preceding 1896 the United States never exported $15,000,000 worth of cotton manufactures in any one year. In the calendar year 1905 the exports reached $56,500,000 in value, falling to $42,961,431 in 1906. But 6.49 per cent of the $815,212,402 worth of cotton manufactures exported by the principal nations in the fiscal year of 1906 makes a lamentable showing for the United States. To overcome that adverse situation Congress provided for sending special agents abroad to report as to what is necessary to be done to increase the exports of cotton goods. For that purpose two experts in the manufacture of cotton goods were added to the force of special agents of the Department of Commerce and Labor, and their reports, together with those of other agents who made incidental investigations in the same field, are included in this volume.

The cotton exported in the calendar year of 1906, including raw and manufactured, and the products of cotton in various forms aggregated in value $489,304,681, which was 28 per cent of the total value of all exports of the country; but only $42,961,048 of that total represented manufactures of cotton. The United Kingdom, which produces no raw cotton, purchasing most of its supply in the United States, exported in 1906 $484,068,320 worth of manufactured cottons, nearly equaling the aggregate in value of raw cotton, manufactured cotton, cotton-seed oil, and other cotton products exported by the United States. Germany exports over twice as much cotton goods as does the United States, although she produces no raw cotton. The United Kingdom exports over $110,000,000 worth of cotton goods to India, while the United States sent to that country

in 1906 only $586,428 worth of such goods. But to Aden $1,634,134 worth were exported by the United States, and the trade to that point has been maintained for years, showing what can be done. No effort has been made in the United States to manufacture dhooties and other cotton cloths largely imported by India. To China $29,814,075 worth of cotton goods were exported in 1906, and the exports to that country have doubled since 1900. The United States has no advantage in China any more than in India, excepting direct steamship communication. There appears to be no good reason why the exports of cotton goods to India can not be increased in proportion with those sent to China. While, proportionately, the United States has made a better showing in Japan than in India, yet England supplied 82 per cent of the cotton cloths imported by Japan in 1905, while the United States supplied only 12 per cent.

The United States does not hold a much more fortunate position in the matter of supplying cotton manufactures on the American continent. Brazil, for instance, purchases comparatively little from the United States, although it sells to this country the greater part of its exports. In one year recently the United States purchased nearly $100,000,000 worth of goods from Brazil and sold to that country less than $11,000,000 worth. Of cotton goods we sold less than $1,000,000 worth to Brazil, although that country imported in that year about $18,000,000 worth of such manufactures. In the same way we supply Mexico with 2 per cent of the yarn and thread imported and about 10 per cent of its other cotton manufactures, although it is a contiguous country, adjoining the cotton fields of the United States. To Canada some 20 per cent of its cotton manufactures are supplied by the United States, although Great Britain has a 33⅓ per cent preferential tariff in her favor, which demonstrates that the United States can sell cotton goods, even in competition with Great Britain, when the proper effort is made.

Special Agent Clark gives many interesting particulars as to the Chinese market for cotton goods. In Manchuria seven-eighths of the cotton piece goods imported are from the United States. But Japan is making great efforts to extend her trade in that province and is making good progress in that direction. The rapid development of the province indicates a large growth in the immediate future in the sale of cotton goods. But Manchuria does not at present afford a market for textile products other than the piece goods it now imports. Special Agent Clark reports, as do the agents sent to other countries, that much is lost to the United States by lack of direct steamship shipments. American banking facilities are also needed abroad.

The financial situation in Manchuria is disturbing, owing to the fact that China has 16 distinct taels, all of different value, and yet no coin of that description. There are several other financial values

quoted in China which are not represented by any coin. While the United States supplies sheetings to China, the United Kingdom furnishes the gray shirtings, which are the next largest item in the cloths imported into China. Special Agent Clark thinks that the United States should share in this shirting trade, and he furnishes good reasons for that belief. With banking facilities and satisfactory communications by water and American manufacturers represented by competent representatives and willing to start with small orders, a large increase in the American trade might easily follow. And what is true of China is true of other countries, particularly those of the American continent.

As it is now, though producing such a large percentage of the cotton used in manufacturing in the world, the United States imports one-third more of cotton goods than it exports. Of the world's cotton spindles in August, 1906, aggregating 120,090,595, the United States had 25,250,096 and the United Kingdom 48,826,144, Germany coming next with 9,730,209. Great Britain is increasing her spindles at a very rapid rate, and Special Agent Whittam states that England will have close to 60,000,000 spindles at the end of this year. Germany appears to be next to Great Britain in the rapidity with which she is increasing the number of her spindles. Special Agent Burrill calls attention to the fact that from 90 to 95 per cent of the piece goods imported into Australia are of English manufacture. American prints are of a different finish from those of Great Britain, and are not of the right width for the Australian market. Mr. Lincoln Hutchinson says that textile goods in Central and South America are the most valuable part of the import trade, excepting iron and steel. South America is now purchasing $80,000,000 worth of cotton manufactures, and will soon pass the $100,000,000 mark, but the United States is supplying only a small fraction of those imports.

What needs to be done in the way of greater care in packing goods for export and other necessary particulars are pointed out by the various special agents.

CHINESE EMPIRE.

MARKET FOR COTTON FABRICS.

REVIEW OF COMMERCIAL CONDITIONS IN MANCHURIA.

Prior to entering upon a special investigation in Manchuria in regard to market conditions in that country for cotton cloths, Special Agent W. A. Graham Clark made a preliminary investigation or reconnoissance with a view of obtaining reliable information as to general conditions as these affect American trade. This report was written in December, 1906, and was the first in the series of reports on Manchuria prepared by Mr. Clark, and is as follows:

Manchuria is a very important market for American flour, oil, tobacco, etc., and especially for American piece goods. It is the one section of China in which American piece goods practically monopolize the market. Of the cotton piece goods imported, over seven-eighths of the total number of pieces are American. The trade of Manchuria is of more importance to the United States than to any other nation with the possible exception of Japan.

Finding some $50,000,000 worth of cloth stacked up at Shanghai, a great part of it American, and that—though not the sole cause—one main factor was the lack of buying from Manchuria, I went north to study the country, ascertain if the slack demand was due to the effect of the war or to other causes, and to see what stocks were held in the interior and what prospect there was of an early resumption of active business for our mills. Every point of importance to American trade interests south of Harbin was visited.

COMMERCIAL CENTERS.

Newchwang is the great gateway to Manchuria—the port through which American goods enter; Dalny is the port through which Japanese goods enter. Kwanchentze and Tieling are the two great interior distributing points. Kirin is a large city, the capital of Kirin Province and a distributing point for goods to the northeast portion of Kirin Province. Mukden is a large city and the capital of Fengtien Province. Hsinmintun was visited mainly to inspect a bridge that was reported to be obstructing junk traffic on the Liao River and so affecting the facility of shipment of American goods inland.

It was apparent that Manchuria is a country whose trade is well worth striving for; that to hold the trade it is necessary to get in closer touch with it; that the country north of Mukden is richer than to the south of that city; that at Mukden and at Tieling the Japanese have secured a large portion of the American piece-goods market and are reaching out for the trade at Newchwang and Kwanchentze; that the Japanese are discriminating in favor of Dalny over Newchwang by variations in freight rates and other means; that it is a fact that at Mukden the Japanese goods have been paying no likin and American goods 2 per cent likin; that the Russian trade interests south of Harbin are slight, and that Vladivostok is not supplying the country south of the line of the Siberian Railway.

It also appeared that while it is not being used for foreign products as yet, there is really more money in the country than before the war; that the present blockade of goods is due as much to too large supply as to too small demand; that the stocks of piece goods that are only normal south of Mukden are much larger north than is generally known; that the prospects for any boom in trade in the spring of 1907 are slight, though in 1908, when the country has more fully recovered from the war and new railroads have been opened, the money returned from the ground, and the methods of business adjusted to new conditions, the trade will undoubtedly be very large.

Since November 15 all likin taxes have been abolished in Fengtien province, which embraces Newchwang, Mukden, Tieling, and other important points. Instead of the likin tax there are levied a "production" tax of 1 per cent on grain and 1½ per cent on other products of the country, and a "consumption tax" of 2 per cent on all goods consumed.

AN AVAILABLE AGENT—DISTRIBUTION OF STOCKS.

My information was obtained through an interpreter, a young Englishman, born and raised in Manchuria, who speaks Chinese so fluently that he was frequently taken by the Chinese for one of themselves, despite his English face. This man [name and address on file at Bureau of Manufactures] was just back from a two years' trip to South Africa, where he conducted 1,000 coolies to work in the mines. He would prove a valuable man to secure as agent or comprador if some American house decides to actually go into the field here to advertise and work up the sale of American goods.

At every place visited from six to twenty of the large wholesale firms and several retail firms were interviewed. The large firms—especially the big commission houses—frequently have with them ten to twenty-five or more merchants and agents from other towns in one firm. These groups of merchants usually listened to the replies given by one of their number as spokesman and either corroborated or discussed them; hence it is no exaggeration to say that the opinions of no fewer than 1,000 Chinese merchants and commission agents were obtained. At each point at least one Chinese banker, all foreign bankers, and the large transport agents were seen, as well as agents of the large Japanese firms. Most of the information, however, was obtained by direct observation and talks with the large Chinese merchants. According to the best information obtainable, the stocks of piece goods at the main points in Manchuria, November, 1906, were found to be as follows:

	Piece-goods stocks in bales.				Stock yarn in bales, Indian and Japanese.
	American.	Japanese.	Chinese.	Remarks.	
Newchwang	20,000	3,000	10,000	Stocks normal	300
Mukden	2,000	3,000	1,000	Less than normal	600
Tieling	1,000	2,000	1,000	....do	500
Kwanchengtze	15,000	300	10,000	Stocks large	500
Kirin	25,000		20,000	Stocks excessive	1,000

These approximate figures are fairly correct. As shown in the table, the stocks of American goods now on hand at the five main

points are some 63,000, and allowing 12,000 as covering the stocks at Hsinmintun, Chang-tu-fu, Liao-yang, and all the other smaller places throughout Manchuria, the total stock of American goods on hand is probably in the neighborhood of 75,000 bales.

FORCING STOCKS ON THE MARKET.

For the four years previous to 1905 there was an average of 1,920,077 pieces imported annually, which in bales would be approximately 58,000. In 1905 there was imported 3,890,769 pieces, which was approximately 114,000 bales. There was thus imported in 1905 a two years' supply. Assuming that the normal stock in the country at this time of year is 50,000, there are 25,000 bales, or six months' supply above the normal, now on hand. Adding to this the larger Chinese stocks and Japanese stocks, a new factor, there does not seem much chance of new business for American mills until the present stocks are absorbed. This is the view taken by the large Chinese merchants, none of whom expect to send many buying orders to Shanghai before fall.

The Japanese stocks of 8,300 were put down as estimated by Chinese merchants and by Japanese agents, but seem large in view of the fact that the Cotton Cloth Export Association was only formed in May, and was to export 1,000 bales monthly, or 12,000 a year. In September and October, however, they imported much more, the total bales coming direct from Japan being 3,082 and 2,676 bales, respectively, for the two months. Even then their stock of probably over 10,000 bales, considering stocks at all points, seems disproportionately large, and can only be explained by considering that before the Cotton Cloth Export Association was formed by the Mitsui Bussan Kaisha there was a large quantity of cloth brought in under the head of "war supplies" and put into the channels of trade. As the "Man on donkey" chop of the Miye Mills and the "Standing horse" of the Osaka Mills are still on the market here, and were known to the trade before the two or three other mills' cloths had stamped on them the "Two cubs" chop of Mitsui, this is probably the explanation.

Both the Japanese and American bales of sheetings contain 800 yards of 36-inch cloth, while bales of drills are 600 yards of 30-inch cloth. The Chinese bales are more variable, but contain approximately 675 yards of cloth 14 to 18 inches in width. There was a big increase in shipments of this cloth into Newchwang in 1905 over 1904, the increase being $2,242,640 (gold) in value.[a] Like other cloth, however, this native-made cloth has experienced the effect of the depression, and the stocks on hand are larger than usual.

TRAVELING IN MANCHURIA.

As showing the facilities for and the time and cost of traveling in Manchuria at present, a few notes as to my itinerary may be of interest, starting and ending at Shanghai. Coming up the coast from Shanghai to Tientsin, a little over two days were required. At Taku Bar the ship had to lie outside and passengers were taken off in a

[a] Vide volume 1. Northern ports. Returns of Trade and Trade Reports for 1905, published by the Inspector-general of customs.

steam launch, crossing the bar with a depth of only 7 feet, passing the remains of the Taku forts, and landing at Tangku, where the train was taken for Tientsin, distant about 25 miles. All freight had to be transferred to lighters, which were then towed 60 miles up the river to Tientsin. The river is so winding that it is twice as far by water as by rail.

From Tientsin the Imperial Railway of North China takes one to Newchwang. This road is English built, and is practically controlled by them, and the principal officers are English. The road has the standard gauge, 4 feet 8½ inches, with heavy rails and well-ballasted track. The cars are a modification of the usual American style, having a door at each end, two private rooms at each end, with a passageway at the side, and the middle of the car being one room with chairs. All engines seen were British make. Trains do not run at night on account of the danger of robbers. Passengers lie over at the railway hotel at Shanhaikwan. This point is near Chinwantao, which is expected in the future to develop as a winter port whence goods can be shipped into Manchuria by the Imperial Railway. From Tientsin to Shanhaikwan took from 11.40 a. m. to 6.30 p. m., and next day from Shanhaikwan to Newchwang took from 7.40 a. m. to 4.30 p. m. At Newchwang the railroad ends at the station on the west side of the Liao River, and passengers go over by launch. After the river finally freezes over it is crossed on sledges, but few goods enter in this way during the winter.

FROM NEWCHWANG NORTH.

From Newchwang the trip to Mukden is made via the Japanese Government railway. On the Imperial Railway of North China the ticket payments are made in Mexican dollars or the equivalent in notes issued by foreign banks in China, but on the Japanese Railway only Japanese war notes are taken. There is no station at Newchwang, the nearest station being Niu-chia-t'un, about 3 miles east of the town proper. Leaving Newchwang at 8 p. m. one arrives at Mukden by 6 a. m. next morning, having changed cars once, at Ta-shih-kiao, some 20 miles from Newchwang, where this line joins the main line that runs north from Dalny. The distance from Newchwang to Mukden is only 115 miles, but the journey occupied ten hours. On the whole of this Japanese Government railway in Manchuria about 12 miles an hour was the rate of speed on which time-tables were based.

This railway has the Japanese narrow gauge, 3 feet 6 inches. The rolling stock is light, but the rails are heavy, 80 or 90 pounds, and the road well constructed and ballasted. This road was originally constructed broad gauge by the Russians, and the Japanese simply moved the left-hand rail going north closer in, and put on rolling stock brought from Japan. The rails had Russian figures and letters on the sides, but it is said that they were mostly made in America. The engines are too light for the work, especially on some of the grades farther north, and the trains are made too long. Some American Baldwin locomotives were observed, but all that were seen up country were British. The cars are very light, and were constructed in Japan. They are on the English style, with double benches facing each other running across the car, and with doors at the sides. There are no

heating arrangements or other conveniences and no sleeping cars, each man having to wrap himself in the blankets that all travelers in this country must carry, and sleep the best he can. The freight cars are also very light. They have only four wheels, and are marked 7 tons.

At Mukden the station is a couple of miles from the town; in fact 2 to 3 miles seem to be the favorite distance to place the station from the town, Dalny being an exception. At Mukden the station was formerly 10 miles from town. As the city is surrounded by tombs, the Chinese authorities would not allow the Russian railway to approach nearer, but advantage was taken by the breaking out of the war to move the road farther in, and it now runs directly through a part of the old burial grounds. Spending half a day at Mukden, the writer left at 3 p. m. and reached Tieling at 8 p. m., 55 miles in five hours. Tieling is about 2 miles from the station, and, like Mukden, is a walled town.

HOTEL ACCOMMODATIONS.

At Newchwang the traveler stops at the Manchuria House Hotel, a fairly well-kept inn, operated by Chinese, and the only foreign hotel in the place. At Mukden the Maolin House is an inn kept by Japanese, over the doorway of one room of which hangs the official American consulate sign. At Tieling it was necessary to sleep on the "k'ang," in a regular Chinese inn, and eat Chinese food. In these inns the first place entered is the kitchen, a square space with mud floor and raised mud ovens with clay and iron pots. From this one passes through a cloth-hung doorway into the inn proper. At Tieling this was about 20 by 60 feet, down the middle of which was an 8-foot aisle with packed mud floor. On each side were ranged the "k'angs," raised mud embankments, brick faced, some 30 inches high and 6 feet wide. On these are spread mattings, and here all guests roll themselves in their own blankets and sleep side by side, with their feet to the wall and their heads to the center aisle. A flue underneath runs the length of each "k'ang," and a fire at one end furnishes the hot air, which passes through and out at a mud chimney and warms the sleepers.

The meals are served on these "k'angs" on little tables about a foot high. At these inns a teapot is always kept warm over a fire in a raised mud embankment in the middle of the main aisle.

TEA DRINKING—SAFETY IN INN COMPOUNDS.

Chinese all drink tea, and it is due to this fact that they drink little well water, and thus keep down the rate of mortality. Tea to a rich Chinaman means concentrated tea, costing 10 cents an ounce; to the poor, it is hot water with a few tea leaves dipped in; and to the very poor, simply hot water. It is significant of the increased wealth in the country that the majority of the lower classes, who heretofore could only afford hot water, are now indulging in actual tea.

The inn at Tieling, which was similar to the inns all over northern Manchuria, had a big compound, surrounded by a high mud wall with gates. The long-distance carts going down the country with beans and bringing back goods are driven inside these compounds for safety from robbers each night, and during the great hauling season in winter these inns are crowded. The walls of the inns are of mud,

plastered on a center wall made by weaving reeds together. The windows are mostly of oiled paper, with possibly one pane of small glass in the center. The rafters are round timbers, on which are spread reeds, then a layer of coarse matting, and then packed mud. In the cities the better inns have brick walls and tiled roof, but are otherwise about the same.

Tieling was reached one night at 8 o'clock and left the next night at the same time for the city of Kwanchengtze, the commercial center of Manchuria.

COST OF TRAVELING.

As showing the present rates on this line, the fare from Newchwang to Mukden was, in Japanese war notes, $6.30 for 115 miles; from Mukden to Tieling, $2.80 for 55 miles; from Tieling to Erhshihlipu (Menkiatun), $7.70 for 140 miles. The total fare from Newchwang to where Japanese train service now ends at Erhshihlipu, 310 miles, was therefore $16.80, or about 5.42 cents a mile, in Japanese war notes. As on November 20, at Newchwang, $100 Mexican equaled 103 yen in war notes and $100 Mexican equaled $58 gold, therefore a war note was worth 56.31 cents gold and the 16.30 yen equaled $9.50 gold, or 3.07 cents a mile.

Leaving Tieling at 8 p. m., one arrives at Menkiatun, the present end of the railroad, at 9 the next morning, or 140 miles in thirteen hours. At Menkiatun we secured a Chinese cart and rode into Kwanchengtze, the great trade center of Manchuria. Riding out to see the Russian station, 3 miles from town, it was found to be well arranged, with a large yard capacity. On the tracks were standing the coaches of a special train that had just brought down the Russian commissioners to discuss with the Japanese the details of the meeting of Russian and Japanese lines at Kwanchengtze next spring. These cars were as long as the longest Pullmans, and as the track is 5-foot gauge, the cars are even wider than Pullman cars. The freight cars on the sidings, however, were small affairs, 10 to 12 tons capacity, and so really not much larger than Japan's 7-ton cars.

PONY EXPRESS SERVICE.

From Kwanchengtze to Kirin passengers go in the Chinese two-wheel covered cart usually drawn by two mules hitched tandem, and freight in the big, open, two-wheel, long-distance carts drawn by seven ponies. A "fast-cart syndicate," composed of Russians and Chinese, had recently organized a one-day passenger service each way, carrying six passengers in a three-horse Russian cart at $6 a head (about $2.73 gold). The distance is 80 miles, and the horses were changed at relay stations every 20 miles. A branch of the Sungari River is forded about midway this distance. The first 70 miles lies through a rolling country; but though the trip was rough on account of the deep ruts, the road is a fairly good one after these are packed down by the heavy continuous winter traffic. The last 10 miles lies through a rough hill country, and the city of Kirin is reached by two steep passes through the hills.

At Kwanchengtze there is one so-called Russian inn where foreign food can be obtained, but at Kirin there are only Chinese inns. Leaving Kwanchengtze at 10 one night, Mukden was reached at 2 o'clock

the next day—195 miles in sixteen hours. Leaving Mukden at 4 one afternoon for Hsinmintun, this 40-mile trip was made in four hours. Leaving Hsinmintun at 7.30 a. m., we arrived on the west bank of the Liao River at 3.30 p. m. and came over in a launch to Newchwang.

Leaving Newchwang, or rather the station of Niu-chia-t'un, 3 miles from Newchwang to the east, at 8 p. m., and changing cars at Tashih-kiao, we arrived at Dalny at 12 m. next day—175 miles in sixteen hours.

From Dalny passage was taken on a small Chinese steamer to Chefoo, taking from 10 p. m. to 6 a. m., and from Chefoo we came down the coast to Shanghai in two days.

TEXTILE OPPORTUNITIES.

FABRICS IN EXTENSIVE USE NOT PRODUCED IN AMERICA.

After a study of the field, Mr. Clark concludes that Manchuria hardly affords a market for textile products other than what it now uses, though it can be expected to take an increasing amount of these and gradually to use some finer goods. Mr. Clark details the textile requirements, with suggestions for adaptations by American mills:

As shown by the customs returns, the textile demand in Manchuria is for sheeting, drills, and jeans, gray and white shirting, and for yarn. There is also a small demand for T-cloths, for black Italians, Turkey red shirtings, prints, dyed shirtings, and brocades, velvets and velveteens, handkerchiefs, and towels. The following imports of cotton piece goods at Newchwang show the trend of trade in these lines for the years mentioned:

Description.	1896.	1900.	1903.	1904.	1905.
Shirtings, gray, plain:					
American ..... pieces..	79,103	62,548	38,470	85,385	79,216
English ..... do....			95,317	63,857	100,730
Japanese ..... do....			5,440	1,500	8,000
Sheetings, gray, plain:					
American ..... do....	376,105	426,113	1,033,089	1,140,620	2,252,165
English ..... do....	27,352	2,792	5,200	6,004	10,906
Japanese ..... do....	1,402	1,496	71,100	2,260	60,266
Shirtings, white, plain ..... do....	33,375	30,471	60,987	69,586	125,261
Drills:					
American ..... do....	246,993	116,525	569,625	442,291	974,557
Dutch ..... do....	2,925	210	110	600	.....
English ..... do....	9,990	.....	480	7,870	2,115
Japanese ..... do....	360	.....	3,100	3,950	11,862
Jeans:					
American ..... do....	700	16,710	92,410	80,350	151,023
English ..... do....	8,268	2,230	25,310	58,240	33,468
T-Cloths ..... do....	33,250	10,870	4,060	4,125	7,983
Chintzes and plain cotton prints ... do....	14,573	26,968	18,000	3,365	24,962
Dyed shirtings, figured, brocaded, and spotted ..... pieces..	630	2,496	100	1,892	1,207
Dyed shirtings and sheetings, plain . do....	2,252	959	2,329	3,752	8,387
Turkey red shirtings and cambrics . do....	8,852	5,463	12,555	6,649	26,460
Velvets and velveteens ..... do....	5,804	2,524	5,772	2,900	12,102
Total cotton cloth imported . do....	851,934	708,355	2,043,454	1,985,196	3,890,769
American piece goods, imported from Shanghai ..... pieces..	587,670	532,890	1,555,720	1,568,000	3,230,375

This shows the large proportion of American goods received via Shanghai. A small amount of American goods also comes direct, and from other ports, such as Chefoo, so that there is a very small amount of foreign piece goods other than American entering this port.

AMERICAN GOODS VIA SHANGHAI.

The other manufactures of cotton imported are handkerchiefs, towels, and yarn, and the amounts for the years mentioned have been as follows:

Description.	1896.	1900.	1903.	1904.	1905.
Handkerchiefs ..... dozens..	20,470	57,546	49,827	33,184	72,417
Towels..... do....	90,846	48,368	156,790	172,750	251,880
Cotton yarn:					
English ..... piculsa.	615	186	87	135	243
Indian ..... do....	157,867	32,799	148,168	123,422	117,651
Japanese..... do....	1,158	8,861	29,561	32,763	51,190

a Picul=133⅓ pounds.

Of the sheetings and drills imported the United States has had an almost exclusive monopoly, but this is now threatened by the progressive business methods of a new competitor. The American sheetings and drills are pure sized, which fact is well known by the shrewd Chinese merchant, and it has given the American cloths such a popularity that English sheetings and drills, which are usually sized heavily, have not been able to compete. Manchuria being a cold climate most of the year, the people dress in padded cloths made of two thicknesses of cloth with cotton sewed in between. Sheeting is often used for the inside and drills for the outside thickness. Both trousers and coats are so padded, and this padded cloth has become the distinctive dress of the northern Chinaman, and in winter they usually wear five or six coats one over the other. Sometimes so many coats are worn that the men can hardly lift their arms. These cotton-padded cloths are much preferred to woolen clothes and the latter have not been able to get much footing.

American sheetings and drills have heretofore sold themselves on this market, their widespread use simply being due to their quality and the fact that they filled a need that could not be supplied elsewhere, but hereafter the American monopoly can only be held by Americans in Manchuria pushing the sale of American goods. Of these goods imported the great majority, probably 80 per cent of the total, are 2.85 and 3 yard goods of about 48 by 48 average construction. There are also some 3.25 and 3.50 yard and a few 4 and 4.50 yard goods.

BRITISH IMITATION OF AMERICAN GOODS.

In jeans the United States, while not having as absolute a monopoly as on sheetings and drills, yet has over three-fourths the trade. This is due to the popularity of a single brand of American jeans that is practically the only one sold here. This "chop" the well-known "Beaver" brand of the Pepperell Mills is so popular that it has been imitated by English mills, as shown by two samples forwarded to the

Bureau of Manufactures. The "chop" and wording on the American and on the two English cloths are as follows:

—Beaver— Fine Jeans, Pepperell Mills, Biddeford, Maine. Trade-Mark Registered. Manufactured in United States of America. 30 yds.	—Beaver— Fine Jeans, Marlborough Mills, Manchester, England. Geo. & R. Dewhurst, Ltd. Manufactured for Brand Bros. & Co. 30 yds.	—Beaver— Very best Jeans. Pure cloth, Superior cotton. Sole importers: Munsterberg & Co., Shanghai. 30 yds.

The American cloth is 96 by 64 ends to the inch and 29 inches wide while the English cloth is 92 by 64 and 29½ inches wide. The English cloth is sized a little heavier than the American. At some places I found the two selling even, but at most places the keen-eyed merchants have seen by the difference in spacing of the letters that the two cloths are not the same make and though the lettering is all Greek to them and the "chop," the clue to their purchases, a "beaver" in this instance, having been exactly imitated, they still give the American the preference by about 10 cents a piece. There are other jeans on the market but the "beaver" chop practically dominates the trade in this line in Manchuria.

THE SHIRTING SITUATION.

In gray shirting America in 1905 supplied Manchuria with 79,216 pieces, England supplied 100,730 pieces, and the Japanese 8,000 pieces. There is no reason why this field can not be controlled by America as well in sheetings. These gray shirtings are 38, 38½, and 39 inches wide and 38 to 39 yards long, with a few 36-inch 40-yard goods, also classed as shirtings. They are quoted not by the yards to the pound, but always by the pounds to the piece. They run from about 7 to 11 pounds to the piece, which would correspond to 5½ to 3.65 yards to the pound. Constructions vary from 14 by 11 to 18 by 20 per quarter inch. In Manchuria the principal gray shirting used seems to be an 8¼ pound piece (4.65 yards to pound), 38½ inches wide and 38½ yards long. The construction was 60 warp and 56 filling ends per inch. This was selling at Newchwang, November 1, 1906, at 2.2 taels per piece, which equals $1.67 gold per piece, or, say, 4.34 cents per yard. At Kirin, on November 12, this same piece was selling at $4 in Kirin small coin, which equals $1.82 gold per piece, or, say, 4.73 cents per pound.

These goods are sold among the Chinese on the "chop" reputation, so that to give list of prices for different weights would be of no value, as one 8¼-pound piece might be of the same value as another 7-pound piece, depending entirely on the varying construction and make of the goods and the standing of the "chop."

Nearly all of these gray shirtings have a heading woven in the piece at the end. This is not a colored heading such as is used for T-cloths and Mexicans, but is made by using a different number of filling for a few picks, usually about twice as coarse as the regular filling, and also running in a few picks of tinsel. For instance, in the 8¼-pound piece

mentioned there were six repeats of filling stripes, consisting of four coarse and one tinsel pick each, and then there was a space of 2 inches of the regular filling and then eight picks of coarse filling. This is the usual style of heading, the first of coarse filling and tinsel being about an inch wide and the other, 2 inches away, of a few picks of coarse filling about one-quarter inch wide.

VARIETY OF USES—WHITE SHEETING.

Gray shirtings are used for all the purposes that fine sheeting is used—for clothes, linings, burial cloths, underclothing, lining the inner side of quilts, etc. Some are also oiled and used in place of window glass. This is quite an extensive practice, much being used as oiled paper. Another use is for mosquito netting, etc. All used for the outer clothing are dyed, and statements I have made on dyeing sheetings apply also to this.

In 1905 there was imported into Newchwang 125,261 pieces of white shirting, of a value of 461,011 haikwan taels, or, say, $357,736 gold. These were not classified according to country, but were nearly all English. The term "white shirtings" covers a wide range, from pure-sized, close-woven, high-grade goods to others that are simply China clay and starch stretched on a framework of yarn. These goods come 32 to 37 inches wide, and in 40-yard lengths. They are used to a small extent for outer clothing after being dyed—for stockings, lining of padded bedclothing, etc., the stiff finish being also used largely for hangings, screens, etc. White shirtings are not sold on their weight, as with gray shirtings, but are graded, according to sizing, width, finish, and general appearance. For this reason prices would be of no value unless samples were also sent, but prices range from 4 cents a yard up to as high as 15 cents. The 4-cent goods are clay-filled rags, while the 15-cent goods are high-grade shirtings. The pure sized are preferred for clothing, as they take the dye more readily.

THE T-CLOTH TRADE.

There is a small business done in T-cloths, and the Japanese have also begun to introduce these, but a T-cloth is practically a narrow sheeting, and the people prefer the full-width sheetings. T-cloths are said to have been so-called from the fact that they were originally exchanged for Chinese tea, hence the name tea cloth or T-cloth. They are usually 32 inches wide by 24 yards long; others are 36 inches wide by 24 yards while still others, classed as T-cloths, are 32 inches wide by 40 yards long. Most of the 32-inch 24-yard class imported into China are Indian, while of the other two kinds English make largely predominates. Very little comes from America, and none of this gets to Manchuria. Altogether, in 1905, Manchuria imported only 7,983 pieces of T-cloth, of which 7,608 were 32-inch widths, and only 375 of the 36-inch width. These goods, like Mexicans, have a colored heading which varies from one-half to 1¾ inches wide.

The T-cloth that is most largely used in Manchuria is a 7-pound, 32-inch, 24-yard piece that has 68 warp ends and 72 filling picks per inch. This piece was selling in Kirin at $3.20 a piece in Kirin small coin, which is about 6 cents a yard gold. The head ends on these as

on gray shirtings are many and various, and are frequently made to order to suit a particular merchant. As an illustration, however, one of the headings most frequently seen was as follows: Purple 4 picks filling, white 4, purple 4, white 2, red 10, green 6, yellow 10, green 2, yellow 10, green 6, red 10, white 2, purple 4, white 4, and purple 4, the whole being 1⅛ inches wide.

ITALIANS, CHINTZES, AND PRINTS.

The ordinary fast-black cotton Italian, which is smooth and close woven, has from its lasting qualities and dressy appearance quite a popularity among the northern Chinese and is increasing in use. These are mostly made from Egyptian cotton and are rather too high in price, so the people in Manchuria, probably in other places also, are making imitation black Italians by dyeing sheeting and shirting black, the color "dzu ching" (noted under head of dyeing), and then starching and given a finish with sesame seed oil. This gives the cloth the smooth, shiny appearance peculiar to the black Italian, and cloth so dyed is very popular. I have forwarded samples of this to the Bureau of Manufactures, and think it would be a profitable experiment for some mills to dye cloth after this pattern and ship out here. A large number of the people use trousers colored the blue "dzung lan" shade and the outer coat of this an oiled finish black "dzu ching" color.

In chintzes and plain cotton prints there is a good demand. The importations into Newchwang for the past five years have been 17,166, 39,648, 18,000, 3,365, and 24,962 pieces, respectively. This does not show any big increases (except the natural contrast between 1904 and 1905), but according to the merchants there is an increasing demand for these goods. Of course there are many kinds of prints used, but the ordinary print cloth, 28 inches or under, is not used on this market, and the 30-inch width is the one in popular use. This same fact was noted in Japan; and if our mills want their share of the print-cloth business of these markets, they will have to make and ship mostly 30-inch widths. The usual length is 24 yards, and the weights 3½ to 5 yards a pound. A good portion of this business is printed T-cloths, 32-inch, 24 yards. Print cloths are used mostly for women's wear, though also for many other purposes, such as bedding, curtains, etc. Prices run from 7 to 12 cents a yard for ordinary market prints.

VELVETS, CAMBRICS, NANKEENS, ETC.

Velvets and velveteens amounted to 488,091 yards in 1905 as against 115,979 yards in 1904 and 230,872 yards in 1903. They are used for clothing as upper coats by well-to-do merchants, for collars and borders, for the upper part of native boots, etc. These come in varying widths and lengths, but are mostly either 22 or 27 inches wide, and 38 to 40 yards long. They come in blue, red, violet, maroon, etc., but the solid black is the color most favored.

Turkey red shirtings and cambrics, while a small import as yet, are increasing in popularity, and the imports were for 1901, 1902, 1903, 1904, and 1905, respectively, 2,530, 7,073, 12,555, 6,649, and 26,460 pieces. These are used mostly for clothing for women, though also

used as linings, curtains, etc. T-cloth and shirtings are dyed locally, but those dyed at the mill are more uniform in color and command a higher price. These cloths are sold mostly in the 32-inch widths, some 30 to 36 inches, and in 24, 30, and 40-yard lengths. Prices range from 5 to 10 cents a yard.

The highest priced goods in Manchuria to-day are not the American standard sheetings and drills, but the Chinese native nankeen. At Kirin, for instance, "Buckshead," the high grade American sheeting, 2.85 yards, 48 by 48, 36 inches wide, was selling at $7 a piece in Kirin, small coins, which is approximately 8 cents a yard, gold. The Chinese nankeen, unbranded, 17¼ inches wide, 48 by 56 construction, sold on same market for 10 cents in Kirin, small coins, per Chinese big feet, which is approximately 7.8 cents a yard, gold. The Chinese cloth, 17¼ inches wide, was therefore selling for practically the same per yard length as the American cloth, 36 inches wide.

ONE-THIRD OF ALL CLOTH USED IS NANKEEN.

The American cloth is shipped to Shanghai and thence to Manchuria, while the Chinese cloth is also shipped to Shanghai and thence to Manchuria, the majority of it being so imported from outside the province. Definite figures are not available, as this cloth comes in through the native customs and so does not show in the published maritime customs report but, according to the large Chinese merchants, one-third of all cloth used in China is nankeen. A large quantity of yarn is imported and cloth woven therefrom on the hand looms of Manchuria, though not to the extent that obtains in some of the other northern provinces. In fact, as has been stated, in winter all North China is one vast weave shed and the magnitude of this weaving on hand looms, in the homes and in small weaving shops, is enormous.

Most of the nankeen imported into Manchuria comes from Shanghai and, though some is made of Indian and Japanese yarns, the finest qualities are made of the best grades of the cotton grown in the neighborhood of Shanghai where an excellent, clean and even running cotton is produced. The cloth so produced is soft but yet very strong. It is stronger than sheetings and not as stiff as drills and is a very well wearing piece of goods. It is used for clothing in place of sheetings, is largely used to make the Chinese shoe and has also a wide use for patching. Being soft, yet strong, it is the best material to use to mend a torn drill coat, and some Chinamen are all patches.

This cloth is shipped in bales of various sizes, but the bales are usually round and about 2 feet in diameter, covered with a piece of the widest cloth wrapped around the outside and half inch sisal rope tied crosswise. The bales usually contain about 40 pieces, approximately 38 Chinese big feet, or 22½ yards long, which gives a total yardage of 900. Some bales have 30 pieces, with a yardage of approximately 675 feet. At Newchwang a bale of nankeen is given as 253 "chang" and one "chang" was stated to be 10 Chinese small feet, which is approximately 1.2 English feet. This would give a bale yardage of about 1,012 yards, but the majority of the bales are not so large. Each bale usually contains 12 or 15 different kinds of cloth, not as with our bales, one kind only.

The range is shown by the following five representative pieces I picked out of an open bale at Kwanchengtze, and samples of which have been forwarded the Bureau of Manufactures:

Chinese nankeen.

No. 1. 17¼ inches wide, 48 warp, and 56 filling picks per inch; price at Kirin 7.8 cents gold a yard; if dyed red, 11.7 cents a yard; if light indigo blue, 13.3 cents a yard; if dark indigo blue, 15.6 cents a yard.
No. 2. 16⅝ inches wide, 40 by 40; price 7 cents a yard.
No. 3. 16½ inches wide, 40 by 32; price 5⅞ cents a yard.
No. 4. 16½ inches wide, 32 by 28; price 4⅝ cents a yard.
No. 5. 16 inches wide, 24 by 16; price 3 cents a yard.

PROFIT IN NANKEENS.

At these prices there should be a profit in making this cloth in America. Low-grade cotton can not be used in the finer qualities of this nankeen, such as No. 1, where the cotton should be at least strict middling. It is well known that in hand carding and weaving, if carefully done, there is less tendering and injury to the fiber than in machine processes, and for this reason it may be difficult to make duplicates that are as strong and yet not put in so much twist as to destroy the softness and pliability that is one of the characteristics of this cloth. I have forwarded a full-sized piece of No. 1, so tests can be made for strength by those interested in this cloth.

The Japanese have thoroughly studied the field in Manchuria and know what will pay best, therefore it is interesting to see on what they branch out. Their main work is being put in to extend the sale of Japanese sheetings and yarn. Next to this they are spending the most efforts in trying to enlarge the sale of an imitation nankeen made in Japan. Speaking with the agent of a large Japanese house he said there was good money in the nankeen market, but that his imitation nankeen had not found favor owing to the raw material being too harsh. They were using Indian cotton while the best Chinese nankeen was being made out of superior Tungchow cotton; but he went on to state that they expected to do a large business along this line even if they had to use all American cotton to do it.

The Japanese are experimenting in shipping both dyed nankeens and dyed sheetings, and are even going further and shipping in lots of finished dyed and padded cloths ready for use.

YARNS AND DYES—LARGE LOCAL BUSINESS—CROPS AND COLORS.

Hand-loom weaving is not carried on as extensively in the three provinces of Manchuria as in other provinces of northern China, possibly due to the fact that the most of the great long-distance cart traffic in winter employs the time of the men while the women have to look out for the homes; also possibly as a result of the unsettled conditions in Manchuria due to three wars. There is still a large business done, however, in the sale of yarn, and if there was an American agent here to keep the mills in touch with the market there are times that it would pay well. Ordinarily the higher-priced raw material and labor of the American yarn would hardly allow competition with the Japanese and Indian.

Practically the entire yarn trade of Manchuria is in the hands of the Japanese firm of Mitsui Bussan Kaisha (Mitsui Products Company). The proportion of Japanese yarn is increasing but the larger

portion of the yarn is still Indian. In 1905, at Newchwang, one-fourth of the yarn was Japanese and three-fourths Indian, but a large amount is being brought in at Dalny (there were 3,387 bales in September and 1,530 bales in October direct from Japan), so that now the total proportion of Japanese is nearly equal to that of the Indian. The Indian yarn, which is nearly all handled by Mitsui, is bought by them in Shanghai and Hongkong, and also some direct from Bombay. There seems to be but two numbers used in Manchuria—10s single which is mostly Indian, and 16s single which is Japanese. The natives describe them as "in" and "out" twist yarn, the Indian yarn having the ordinary right-hand twist while the Japanese yarn has a left-hand twist. By right-hand twist is meant twist that slopes up to the right like the threads on an ordinary screw, and left-hand twist is the opposite, when the twist slopes up to the left. The largest majority of the yarn seems to be 10s. At Tieling, the big yarn market, the prices quoted November 5, 1906, were:

			Gold per pound.
"Tea carrier" chop of Graves, Cotton & Co	No. 10s.	=$108 Mexican a bale	=$0.15¾
"Bridge and boat" chop of Currimbhoy	No. 10s.	=$114 Mexican a bale	=$0.16¼
"Blue fish" chop of Kanegafuchi mills	No. 10s.	=$115 Mexican a bale	=$0.16¾
	No. 16s.	=$140 Mexican a bale	=$0.20¼
"Red horse" chop of Settsu Spinning Co	No. 16s.	=$136 Mexican a bale	=$0.19¾

As showing the topsy-turvy condition of prices in Manchuria at present, I found the Kanegafuchi Blue Fish 16s selling at Kirin at 19¾ cents a pound, which is less than the Tieling price, though much farther inland.

HOW YARNS ARE PACKED.

All yarns are, as usual in America, put up in 400-pound bales, but they are also bunched. Each bale consists of forty 10-pound packages, and each package consists of skeins (usually the number of skeins corresponding to the number of yarn) tied with three or four strings and wrapped in stiff wrapping paper. On this is placed the label of the mill, the "Golden Elephant" of the Osaka mill, the "Blue Fish" of the Kanegafuchi mill, or some such design. The whole is wrapped in heavy wrapping paper and gunny sacking and baled with four to six ties, usually colored orange. Half-round pieces of bamboo are put under the ties at the four edges before baling. The Indian bales, which are brought from a greater distance, also have a heavy tarred gunny sacking placed between the paper and the outer covering of burlap or gunny sacking.

Occasionally a bale of yarn is found mildewed, which is due to too much moisture being put in the yarn at the mill with a watering can in order to gain weight. As is well known among mill men, proper conditioning is all right and not only makes a smoother and better weaving yarn by laying the fiber, but actually increases its strength. Cotton put through the processes incident to an ordinary mill loses from 2 to 7 per cent or over of its natural moisture and if this moisture is restored the yarn simply regains its normal condition. At one mill in Japan I saw this done by simply spreading a cloth over the yarn and using a watering can, but this method is crude, and in an effort to get too much weight the fiber gets too much water and has a tendency to rot.

It is well known that the millions of Chinese living in the northern sections of China are clothed in American sheetings and drills. It is also well known that they wear no white outer garments, unless in mourning, and that nearly everything is dyed some shade of blue.

DYEING OPERATIONS.

It has been considered that on account of China's cheap labor and the cheapness of their dye it would not pay to dye this cloth in America. From what I have seen of the small establishments in which this dyeing is carried on and the fact that indigo dyeing on a large scale is done very cheaply now in the United States, I am inclined to doubt this and think it is a matter worth looking into by our manufacturers and dyers.

While at Mukden and at Newchwang I visited some of the dyehouses and obtained some information from the merchants as to the best selling shades. I also obtained samples that I am forwarding to the Bureau of Manufactures showing the exact shades used. At the dyehouses I was informed that the Japanese had been there before me several months ago, and that the information I wanted in an interview they had obtained by repeated visits and careful observation of the operations and had noted everything in detail, from the cost of the clay to support the "kongs" or dye pots to the average wage cost per piece. At the merchant's place I was shown Japanese woven and dyed nankeen in imitation of the Chinese; also samples of dyed sheetings with which they were experimenting.

Most of the Chinese dyehouses are small affairs. The clay pots in which the cloth is dyed are termed "kangs," and are about 5 feet high, tapering from about 30 inches diameter at the top to about 12 inches diameter at the bottom, and holding probably 100 gallons. This is the usual size, though many different sizes and shapes are used. These are arranged around the sides of the room in mud embankments about 30 inches high, the rest of the "kang" being down in the ground. The blues are all dyed with indigo. To dye, the "kang" is first filled with water and this heated to boiling. Then indigo dye and natural soda are stirred in, and then lime added until the color is to the dyer's satisfaction—a yellowish, streaked-blue color. This is kept boiling for twelve hours, then the bolt of American sheeting is brought forward and pushed in with a stick, fold by fold. This is kept in for, say, half an hour and then taken out and hung on a high bamboo framework to dry in the wind or, as is often done, is spread out along any convenient place, such as the city wall, and where it is exposed to all the dust kicked up by passing teams. For some colors this is then put back and dyed again and then dried again. For some shades this is done three times. In bringing the cloth out of the bath it is pulled through holes in a small board to remove the surplus dye and water.

VARIETY OF COLORS.

At Mukden, according to Tien Ho Tung, one of the largest merchants, nearly all cloth is dyed one of three shades of blue called, respectively, "Yu lan," "dzung lan," and "fur ching" or else fast black called "dzu ching." All other colors and shades are dyed in comparatively small quantities. The full list of all ordinary colors

dyed at Mukden, and prices per piece of 40 yards for dyeing, were given as follows:

	Gold.		Gold.
Yu lan, a fish blue (light blue)	$0.83	Ping line, dark blue	$0.75
Dzung lan, a gentian	1.60	Quai loh, dark green	.40
Fur ching, a dark-purple blue	5.50	Ngu hwang, goose yellow	.40
Dzu ching, a black	2.75	Gan ching, pestle blue	.75
Mao pao, a pale blue	1.75	Fur ching, purple	.58
Tso ching, sky blue	1.90	Hsiang se, olive green	.65
Ping hong, red	.38	Feng hung, pink	.35
Ping lao, green	.45	Tientsin, dark gentian	.85
Ping tsze, purple	.38		

The high-priced colors above are all indigo dyed. The most expensive of all is "fur ching," (not to be confounded with another color also pronounced fur ching, though the Chinese characters are a little different, that is a cheap aniline dyed color) and the next is the blacks. "Lan" means "blue," while "ping" means "foreign" or "novelty," and usually denotes colors that are dyed with foreign dyes or at least shades that were so first introduced.

The firm giving these prices is a large one, and as it pays over $5,000 annually for dyeing alone it gets the lowest prices, about 30 per cent below the open-market rate. Contracts with the dyers are made at the beginning of each quarter, fixing the price for the ensuing three months. The prices given are the prices for this quarter.

At the dyers' establishments I also obtained some figures which showed a good deal of variation, but on the whole were one-fourth to one-third higher than the merchants' prices named. The regular quotation on "Yu lan" was $1.28 gold. The dyers' prices were for small lots.

NEWCHWANG DYEING PRICES.

At Newchwang the firm of Yung Fung Hsing gave the principal shades of blue as four in number and one black, and stated that practically all cloth dyed there is in one or the other of these five colors. I have forwarded samples to the Bureau of Manufactures, and if American manufacturers attempt to reproduce these the shades should be exactly matched and the colors should be fast. This firm gave their prices (in gold) for this quarter as being per piece of 40 yards in indigo blue: Yu lan, 80 cents; dzung lan, $2; she lan, $4.60, and fur ching, $6.40, while the price was for black, dzu ching, $2.70.

On account of the quantity they send to the dyer each quarter they get about 25 per cent cheaper prices than the charges for small lots. These prices show some discrepancy as compared with those I obtained at Mukden, but as the colors I find are not of exactly the same shade and the cost of dyeing is varied to each merchant, not only by the cost to the dyer but by the merchant's trade, this is to be expected.

For dyeing the light-blue shade of indigo known as "yu lan," the shade most used by the poorer classes, such as coolies, etc., there is used to one kang full of water 10 catties (13⅓ pounds) indigo; 5 catties (6⅔ pounds) natural soda; and 1 cattie (1⅓ pounds) lime. Four pieces are dyed with this, which, with 2.85 sheeting, is 160 yards, or 56 pounds of cloth. The cloth is dyed twice in the same bath—that is, dyed, taken out and dried, put back and dyed again, and then dried again.

For dyeing "dzung lan" there is used 20 catties (26⅔ pounds) indigo; 15 catties (20 pounds) natural soda, and 2 catties (2⅔ pounds) lime. Usually three pieces are dyed in one "kang" of this.

For dyeing "she lan" there is used 24 catties (32 pounds) indigo; 21 catties (28 pounds) natural soda, but no lime. Two to three pieces are dyed with this, each piece being dyed three times. Each time it is starched with 6 ounces of "swe gow" or gum.

USE OF MOUNTAIN TEA—OIL FINISH.

"Dzu ching" is a black obtained by dyeing with wild or mountain tea leaves that the natives call "san tzar year." It is usually produced by dyeing over the blue shade known as "dzung lan." About fifteen buckets of water are put in a large flat pan and the water heated to boiling, 13 pounds of these wild tea leaves added and also 3 pounds of an ingredient that resembles a green alum. Fifteen pieces are dyed with above and each piece boiled twice. The pieces are then starched, using about 1 pound of starch to a piece, dried and folded ready for use. There is quite a lot of cloth dyed this shade and then oiled to give it a shine in imitation of black Italians, and cloth so dyed is very popular. To get this finish 10 ounces of sesamum-seed oil is mixed with 2 catties (2⅔ lbs.) of bean flour. This is boiled in clear water and stirred until it is a thin paste. The cloth is brought through this dried and rolled.

The foregoing proportions were obtained from native dyers, but, as they themselves stated, are rather general, as the actual amounts to be used are left to the judgment of the individual dyer and are varied according to the quality of the dye, the quality cotton used in the cloth, the coarseness of weave, etc.

NATIVE INDIGO.

At Newchwang a little foreign indigo is imported, but the most of the indigo used in Manchuria is native grown, is manufactured into dye at Kwanchengtze, and other places, and is bought by the dyers both as a powder and as a paste. A leading authority on Manchuria gives a good account of the method of manufacture:

The only dye plant grown in Manchuria is the dyer's knot weed (Polygonum tinctorium, L.). True indigo from Indigofora tinctoria, L., is not a product of these provinces; but the polygonum yields a similar blue dye, which is universally employed in the many large dying establishments of Manchuria, where it is called "santien." The seeds are sown in April in drills about 9 inches to a foot apart, and in the latter half of September, and before blossoming, the plants are cut down near the roots, steeped tip downward in lime-lined vats containing water and weighted with stones. The steeping lasts thirty-six hours. The plants are then removed, and the water in which they were steeped—now green in color—is poured into large earthenware jars, standing on a concrete floor, having a conduit leading to a large tank sunk in the ground.

Into another similar jar, also containing green water from the vat, a piece of lime is placed, and a part of the stirred-up mixture, weighing about 3 pounds and of the consistency of cream, all undissolved lime and impurities being avoided, is poured into each of the other jars. A man then proceeds to beat the contents of each jar with a square piece of wood, in the center of which a long wooden handle is fixed. Gradually the green water assumes a dark-blue color, and it is calculated that when 500 blows have been struck the grain has been completely separated. The jar is then emptied into the conduit, by which the contents find their way to the tank. Here the blue granules sink to the bottom, and when the surface water is removed the sediment is collected and made up into cakes for market as dry indigo, or poured into waterproof-papered baskets and sold under the name of liquid indigo.

This native indigo is much cheaper than the foreign genuine indigo. At Mukden the dyers gave the price they were paying as 30 cents Mexican a cattie (13 cents gold a pound), and at Newchwang as 20 cents Mexican a cattie (8.7 cents gold a pound), but the price varies with the quality, quantities in which bought, etc.

SODA, LIME, AND FUEL.

The natural soda is used in the shape of rough bricks weighing about 5 catties each and costing 50 cents Mexican a brick, which makes it approximately 4 cents gold a pound. This natural soda is obtained in various places, but most of it comes down in carts from the North, where, it appears, there is quite an industry carried on in extracting it from the soda and salt-impregnated steppes in the southwest of Hei-lang-chiang Province.

Lime is also a local product and costs 2 cents Mexican a cattie, or ¾ cent gold a pound. It takes about 50 catties (67 pounds) coal to dye each "kang," and this is now bought at 75 cents Mexican a hundred catties, which is at the rate of about $5.65 gold a ton. This coal is not burned straight, but is mixed with a kind of clay soil that is brought into the cities from neighboring deposits by the cartload and sells for about 80 cents Mexican a cartload, which contains probably 300 pounds. This clay also burns up completely, leaving slight residue.

TOTAL COST OF INDIGO DYEING.

To dye a "kang" of "dzung lan" is usually considered to take two men 24 hours, or, say two days' work. Figuring from above the cost of dyeing a "kang" of "dzung lan," say we have

Dye:	
27 pounds indigo, at 8.74 cents	$2.35
20 pounds natural soda, at 4 cents	.80
2¾ pounds lime, at ¾ cents	.02
Fuel: 67 pounds coal, at $5.65 a ton	.19
Labor: 2 men 2 days, at 30 cents each	$1.20
Total	$4.56

Dividing this by 3, three pieces being dyed by above amount, gives $1.52 as cost of dyeing 40 yards. The price the large merchants paid for this was $2 a piece, which leaves 48 cents a piece for the dyer to pay all other expenses, not included in the foregoing rough estimate and for profit. A piece of 2.85 sheeting weighs 14 pounds per 40 yards, which makes it 11⅞ cents a pound to dye, according to costs in the table.

Sheetings are 36 inches wide, and drills only 30 inches, but owing to the closer texture of the latter, three harness instead of two, it is considered that they cost about as much to dye, so no distinction is made between them in dyeing charges.

Fur ching, which is the most expensive shade, costs $5.50 to $6.50 a piece to dye in large quantities, and makes the resultant cloth almost as costly as silk. It is a very popular shade, however, especially with the merchant class. Indian Head sheetings that are now (November, 1906,) selling at Newchwang at $6.20 Mexican a piece or 9 cents gold a yard, after being dyed "fur ching," are selling at $18 Mexican a piece or 26 cents a yard. Of the $11.80 Mexican difference $11.50

represents cost of dyeing, and 30 cents Mexican the usual amount the merchants add on for their trouble in having it dyed.

The foregoing gives a cost of dyeing with "fur ching" of $11.50 Mexican or $6.67 gold a piece of 14 pounds at present exchange rate of $0.58. This is 47.6 cents a pound, say ordinarily 50 cents a pound, and this shade should certainly be produced cheaper than this in the United States.

NEWCHWANG.

TRADING OPERATIONS AT MANCHURIA'S CHIEF PORT.

Newchwang is the gateway to Manchuria. It is a good port, one of the most important in China. In 1905 it ranked fourth in the net consumption of foreign imports, the imports being, haikwan taels, 31,003,143, and were exceeded only by Shanghai, 92,207,173; Tientsin, 59,640,982, and Hankow, 47,510,919 taels. (A haikwan tael equals 0.834 cents gold.)

There is a lack of direct steamship lines to Newchwang, and the great bulk of the goods are transshipped at Shanghai, so that in direct imports in 1905 (that is, from foreign countries direct) Newchwang only ranked eighth, with 9,938,760 haikwan taels, being preceded by Shanghai, Tientsin, Hankow, Canton, Kowloon, Swatow, and Amoy. In 1903 out of a total import of 4,492,521 pieces of American sheeting, drills, and jeans into Shanghai, 1,555,720 pieces, or 34.6 per cent, were reshipped to Newchwang. In 1904 this was 1,568,301 pieces out of 3,869,101, or 40.5 per cent, while in 1905 it was 3,230,375 pieces out of 12,248,333, or 26.4 per cent. The 1905 trade was exceptional. Take sheetings for instance. For the four years 1901 to 1904, inclusive, there was an average of about 1,000,000 pieces American sheeting brought in at this port. In 1905, on account of speculation, not demand, this was increased to about 2,250,000 pieces. On drills, the average for the four years was nearly 500,000 pieces. In 1905 this was increased to nearly 1,000,000 pieces. On American jeans the yearly average was about 75,000 pieces. In 1905 it was over 150,000 pieces. These three lines constitute the great bulk of the textile imports and there was thus brought in during 1905 a two-years' supply, which partly accounts for the present situation.

HARBOR FACILITIES AND SHIPPING.

Any ship that can get over the bar can come up the river and alongside the Newchwang wharves. The town lies on the east bank of the Liao River and some 13 miles from its mouth. The usual depth of the bar at high tide is about 17 feet, though in special months, such as July and August, ships have come in drawing over 20 feet. The depth of the harbor at the town varies from 7 to 26 feet at points. About half the ships unload by lighter, but the Japanese have lately been improving the water front (it is generally understood with funds from the Chinese customs) and more wharves are being built so that an increasing number of ships unload direct. Many of the godowns are right on the Bund; in some cases the cargo is simply carried a distance of 30 feet across the street from the hold of the ship to the warehouse. There

are no wharfage dues, but tonnage dues are 30 cents gold a ton. Stevedores for unloading cost about 60 cents Mexican a day, or about 35 cents gold at the present rate of exchange.

From Shanghai there are three steamship companies that make regular trips during the open season, that is, from April to November—the China Merchants' Steamship Navigation Company, the Indo-China Navigation Company, and the China Navigation Company (Limited).

The rates on cotton piece goods from Shanghai to Newchwang vary from 4 to 6 taels per ton of 40 cubic feet, according to the supply and the competition. Much is carried by sailing vessels. The average rate per ton is about 5 taels, which is, assuming the Newchwang tael to be at exchange value of 75¾ cents (the actual rate at Newchwang, November 20, 1906), $3.79 a ton of 40 cubic feet. A bale of sheeting is supposed to be 8 cubic feet and a bale of drills 6 cubic feet, which would give rates from Shanghai to Newchwang of 76 and 57 cents gold a bale, respectively.

DIRECT SHIPMENTS.

There is only one line making regular trips direct across the Pacific and touching at this port. This is the Boston Steamship and Towboat Company, which operates the steamers *Pleiades*, *Hyades*, etc. They make trips via either Vladivostok or Japan about every ten days. This line handles mostly flour; very little piece goods come that way. If there were more direct shipping, it would be a great boon to American trade with Manchuria, but the lack of return cargo is a great hindrance to business. If the transshipment at Shanghai and added costs were cut out, American goods could be sold at a lower price in Manchuria and be better enabled to meet Japanese competition.

As an illustration a merchant at Newchwang gave an instance of two shipments of American butter imported, one direct and the other from San Francisco via transshipment at Kobe. The direct shipment cost $8 a ton and the marine insurance $4.15 per $1,000, while the transferred shipment cost $12 a ton and the marine insurance $4.25 per $1,000. As shown elsewhere, the proportionate added cost is as great or greater in the case of American piece goods transferred at Shanghai. From Japan the mail boats of the Nippon Yusen Kaisha and the cargo boats of the Osaka Shosen Kaisha make regular trips. This last sails from Kobe via Nagasaki, Chefoo, and Tientsin, one steamer per month calling at Korean ports.

SHIPPING INTO THE INTERIOR.

Newchwang owes much of its importance to the fact that it is on the Liao River, which affords cheap communication with the interior boats going as far as Tieling and beyond. These are mostly 10 to 20 ton boats, and there are probably 15,000 or more in this trade. Millions of dollars' worth of produce have annually been brought down from the interior in this way, and millions of dollars' worth of foreign goods have gone back on the return trip. This traffic is only possible from April to October, as the river freezes over, or begins to do so, in November. In winter traffic is carried on by cart. These come down from the interior, 400 miles or more, making the trip from Kirin in about twenty days, and are mostly the flat, heavy, two-wheel cart

used in Kirin Province, and with seven ponies, one between the two shafts and the others hitched in two lines, three abreast, in front.

At present the cart traffic, while still enormous between such places as Kirin and Kwanchengtze, is being displaced by the railroads for the long distances, the main reasons, of course, being the cheapness, saving of time, and the less exposure of goods to the weather. Also another reason, which an interior merchant gave as his reason for shipping by rail, is the greater safety from robbery. The average rate of speed of the heavy, seven-pony carts is 10 Chinese li, or $3\frac{1}{8}$ miles an hour, making about 30 miles a day. The average rate of speed of the Japanese Government railway is only 11 miles an hour, but they do not stop at night.

The railroad competition is also cutting off a large amount of business from the junk trade on the Liao River, both in produce coming down and goods going up. Heretofore in the late winter beans, bean cake, silk, ginseng, skins, and other products have been brought by cart as far as Tieling or Hsinmintun and then shipped down the Liao when traffic opens in the spring. One reason why the shippers of beans prefer the railroad is the reduced liability of loss, either natural or intentional. It seems to be a habit with some of the boatmen to take beans out of the bulk shipped and fill this space with water which swells the other beans so as to hide the loss, but affects the price afterwards. While railroads are taking a large portion of this trade, the river will always be a valuable highway, as water traffic is usually cheaper than rail traffic, and always cheaper when time is of small consideration. Owing to its superior advantages, however, the railroads are tending to monopolize most of the trade, and the majority of the goods are now going into the interior this way, though it is only since the war that this accommodation has been freely available, and even now there are discriminations in favor of one place over another that does not tend to the prosperity of Manchuria as a whole.

TRANSPORT AGENTS AND THEIR CHARGES.

The shipment of piece goods from Shanghai to Newchwang is almost wholly in the hands of Chinese. The shipment of piece goods from Newchwang to the interior of Manchuria is wholly in the hands of Chinese, with the exception of Japanese, not a single foreigner being engaged in this business. The shipping is attended to by transport or shipping agents, Chinese firms, who charge so much for their services, but usually simply contract to deliver the goods from the Newchwang godowns to the merchant at Tieling, Kwanchengtze, Kirin, etc., as the case may be. This business is well organized, and the large transport firms have connections at all the principal points and handle any kind of goods much after the manner of our express companies, hauling to the railroad, loading and shipping, and then making connections at the other end, unloading and hauling to the customer, whatever his distance from the railroad may be.

All these transport agents base their charges not on the usual ton of 40 cubic feet or on the pound, but on the "package" of 120 catties, which is 160 pounds. For purposes of shipping charges throughout Manchuria the bale of sheeting (containing 20 pieces or 800 yards cloth) is always charged for as "two packages" whether the cloth weighs 2.85, 3, or more yards to the pound. In the same way a bale of

drills (containing 15 pieces or 600 yards) is considered as "1½ packages" irrespective of the weight of the cloth per yard. According to the large transport agents there have been sent up into the northern country from Newchwang 120,000 to 130,000 bales of piece goods since peace was declared—that is, in the last twelve months—which is much more than usual. Comparatively little is now going up.

STORAGE AND SALES.

At Newchwang I found about 20,000 bales of American goods, which is a smaller amount than at this time last year, but a larger amount than at this time year before last, and may be considered a normal stock. This cloth is mostly stored in godowns or warehouses, and insured. The godowns are usually in compounds which are about 60 by 250 feet, surrounded by a mud wall. Inside this compound will be sleeping quarters, kitchens, etc., and at the ends and sides five or six godowns, say 20 by 40, or 20 by 60 feet. These have mud or brick walls, packed mud floor and mud roof made of framework covered with coarse matting, and mud packed over this. This is the style of warehouse in which most of the cotton piece goods now at Newchwang are stored, part being stored in the godowns and part in the open spaces in the compounds, and covered with matting. The insurance on stored cloth is 1½ per cent, less 0.10, which amounts to 1.35 per cent if stored by natives; and ½ per cent less 0.10, or 0.45 per cent, if stored by foreigners, it being considered that foreign firms are more reliable and will take better care of the goods.

Usually at this time of year, the busy season, there are sold a thousand bales of American cloth a day, but, on account of the general depression, sales are now only one to two hundred a day. Most of the big firms in the interior that usually keep buying agents here have entirely withdrawn them; an unprecedented condition. I found goods cheaper at Newchwang than at Shanghai. In fact, the following topsy-turvy condition obtains: Goods (American cloth) are cheaper at Shanghai than at New York; cheaper at Newchwang than at Shanghai; and cheaper at Kirin, 500 miles in the interior of Manchuria and 80 miles off a railroad, than they are at Newchwang. Take, for instance, Buckshead sheeting: It was quoted from America, c. i. f. Shanghai, at about 14s. (a 40-yard piece), which would be $3.40 gold, or 8½ cents a yard, but the few resales reported were about 4.4 taels (or under) a piece, which would be about $3.30 gold, or 8¼ cents a yard. At Newchwang the price was 4.3 taels—$3.26 gold, 8.15 cents a yard—while at Kirin the price was $7 a piece in Kirin small coins, or $3.18 gold, or 7.95 cents a yard.

RESULT OF CONGESTION.

Speaking generally, if goods are quoted c. i. f. Shanghai at 8½ cents a yard, they would usually be selling at the mill for say 8¼ cents, less 4 and 3 per cent (say 7⅝ cents net), and should sell at Newchwang at about 9½ cents a yard and at Kirin at about 10 cents a yard. At present, therefore, Kirin is actually 3 cents cheaper per yard, or $2.40 a bale less than Shanghai, when normally it should be, say, 1½ cents per yard (or $12 per bale) higher. Of course there can be no further business until this anomalous condition is removed.

The reason for this extraordinary condition is, primarily, the result of too heavy buying last year, wild speculation, or too great a confidence in the future of the market, which has stacked up $50,000,000 worth of goods at Shanghai. In America a demand has sprung up in the home market and prices have advanced; but Shanghai has too heavy a load to follow, and in fact continues to slip back. Newchwang is cheaper than Shanghai because at Shanghai there are better banking facilities and more organization among the dealers. There are seven big Chinese dealers at Shanghai: Soo Poo San, Hung Sheng, Yuen Sheng (Yin Shih Chang of this firm is now touring Europe and America studying the textile situation), Fa Fung, Ching Dai, Yeh Dai, and Yung Kong; and these, while not able to prevent a slow decline, by concerted effort have firmly resisted the drop in prices, and have prevented the bottom from dropping out of the market. At Newchwang the merchants are smaller and more numerous and the banking facilities are not so good, hence they have not been able to prevent prices from sagging heavily. Kirin is temporarily cheaper than Newchwang because the stocks are heavier, and the people at Kirin and to the north and east of Kirin, supplied by Kirin, are not buying, while Newchwang, by sending out special representatives into various parts of the country, has induced merchants, as they did especially at Kirin, to take larger amounts than usual, and so, to some degree, relieved the congestion at Newchwang.

BRANDS OF SHEETINGS.

The American "chops" commanding the highest prices in Manchuria are in sheetings the "Buckshead," in drills the "Dragon," and in jeans the "Beaver." Next to the Buckshead (Pacolets, 2.85 sheeting) the highest priced sheetings are the "Dog's head in ring," the "Flying horse," and "Indian head." These are all sheetings weighing 2.85 yards to the pound. Next to these come the leading three-yard drills, "Large dog's head," "Running horse," "Three hares," and then others "Flying man," "Eagle," "Man fighting lion," "Horse and dog," "Man and globe," "Two hares," "Running leopard," "Horse head," "Big and small hawk," "Dog and deer," "Dog and melon," "Half-moon," "Ring around flower," "Buffalo," etc. There are few English sheetings on this market. One of these, the "Mandarin" chop, has a fine sale, and has about the same market price as the "Large dog's head" three-yard sheeting.

The Japanese sheeting is mostly the "Two crabs" chop of the Cotton Cloth Export Association, sold by Mitsui Bussan Kaisha, agents for five Japanese mills. There are three qualities of "Two crabs," the best quality selling at Newchwang at about 40 cents Mexican, say, 23 cents gold, cheaper than "Dog's head in circle." One of the agents of this company said that the selling price of their cloth was at present based on the American "Three hares" chop, but I usually found it lower. There are also a few other Japanese chops on the market, the Miye Mills "Man and donkey" and the Osaka Mills "Red horse;" also small lots of "Three bats," "Two deer," "Three fish," and "Two fish." In drills next to the leading "Dragon" chop (Pepperell 2.85) is the "Man, horse, and bow" (Pacolet centaur), "Two hares," "Standing horse," "Small horse head," "Running horse," "Four eagles," "Men carrying cannon" (rapid fire), "Calf's head in circle," etc.

In drills, as in sheeting, practically everything is American, though there are a few English sold. Mitsui Bussan Kaisha sells a "Bird" chop drill, but as yet it is hardly on the market. In jeans the only chop having any sale is the "Beaver," or, as it is called by most of the Chinese merchants, "The flying squirrel," though there are a few others, such as the "Peacock," etc. The jeans made by the Pepperell Mills has this "Beaver" as its chop or trademark, and this is registered in America but presumably not in England, as there are two other jeans on the market here that have identically the same chop, one made by the Marlborough Mills and the other simply having the name of the Shanghai importer.

NEW BRANDS.

In this connection it would be a wise step in introducing new brands to have part of the lettering in Chinese. The Roman characters look as strange to a Chinaman as Chinese characters do to an American. Also each cloth should have a distinctive chop. The Augusta Mills sheeting, which has no trade mark, is known to the Chinese as the "Half moon" chop from the half circle formed by the title, but as a regular thing very little cloth can be sold here with only English letters and without a chop.

In catering to this market chops of familiar things might appeal to them more. One merchant speaking of this said that though there were too many chops already, yet if new ones were introduced it might help their sale, other things being equal. Such should have representation of things with which the Chinaman is familiar, such as the "two-wheel seven-pony cart" (used for hauling goods throughout Manchuria), the "Sycee shoe" (the silver ingot used in paying for goods), a familiar "gate to a walled city," or some such design.

In Manchuria as elsewhere in China the merchants and other trades are much more organized, and in a certain way work together more than is usual in America. In Newchwang this "Merchants' Guild" meets every morning very early and fixes prices for the day, discusses the business outlook, etc. Most of the merchants have regular printed forms giving the names of the cloths they handle and spaces left for the morning quotation. One of these has been forwarded to the Bureau of Manufactures, and can be seen by any manufacturer who wants to know how the Chinese write the name of chops. [The quotation sheet will be loaned to exporters making application.] These prices were given in Fengtien province small coins, of which about 110 equal $1 Mexican, and $1 Mexican is now equal to 58 cents gold, so I have used these values in obtaining equivalent in gold. Prices are quoted both in small coins or in taels. The retailers usually sell by the tier or "string of cash." The present exchange value of the Newchwang tael is 75.75 cents gold.

JAPANESE COMPETITION.

Mitsui Bussan Kaisha have a good reputation with the Chinese but were given a setback in Newchwang upon their introduction of Japanese goods in the summer of 1906, and have not yet recovered from it. The samples they showed the merchants in the spring were about as good as the American chops and much cheaper, so that the Chinese ordered eagerly, but when the goods arrived they proved to be much

inferior. The merchants, therefore, still prefer the American, but are forced to buy the Japanese to meet the demand of the country people for cheaper cloth. The prices are now tending closer together. When the Japanese introduced the goods about May American sheeting was selling at about 4.50 taels a piece or say 8.45 cents gold a yard. The Japanese started their sheeting in at 3.60 taels a piece, or say 6.75 cents a yard, a difference of 1.70 cents a yard. American stocks have continued to accumulate and prices to sag while the Japanese having started at such a low figure originally have refused to lower their prices proportionately. Rather than do this they have sent peddlers with cloth throughout the country, especially around Newchwang, to stimulate the demand for their goods, following the up-to-date plan of going after the trade when the trade does not come to them.

I was informed by Japanese that this had induced such a demand for Japanese goods that the Japanese sheeting was selling for nearly as much as American sheeting. On actual inquiry at the Chinese wholesale and retail stores this was found to be incorrect, though prices are certainly tending closer together. Now the American sheeting is about 3.70 taels a piece, or 7 cents gold a yard, and the Japanese about 3.40 taels a piece, or 6.45 cents a yard. a difference of only 0.55 cent as compared with 1.70 cents in May.

MERCHANTS' LOSSES—COMMISSION CHARGES.

At Newchwang there is much money tied up in stored goods, and many of the merchants also have goods stored at Shanghai. The continued depression causes the value of these to decrease, and the heavy cost of carrying has sapped the strength of a good many interested in this trade. A good many failed last spring, and failures in 1906 aggregated between one and one-half and two million taels. One merchant stated that besides a stock on hand at Newchwang he still had 500 bales in Shanghai that he paid 4.90 taels apiece for, while the value of this at Newchwang now was only 3.60 taels apiece, a direct loss of 57 taels a bale ($43.18), including freight difference, besides the heavy loss by storage which involved about 40 cents a bale a month. Business can not boom again until these conditions are changed and present stocks absorbed.

As commission for buying Newchwang merchants charge 2 per cent on cotton piece goods and 3 per cent on other goods. For instance, if a merchant at Kwanchengtze orders so many bales of a certain chop from a Newchwang merchant, this latter buys them from one of the large Chinese dealers at Shanghai, and charges the Kwanchengtze merchant 2 per cent besides all costs. The Newchwang merchant either keeps an agent or has connections in Shanghai to attend to such orders.

At present goods are, on an average, 3 taels a bale cheaper at Newchwang than at Shanghai, so those agents have been withdrawn. Ordinarily goods should be about 10 taels a bale more. In Newchwang, as well as elsewhere in Manchuria, most of the merchants are from Shantung, either they or their ancestors, and the Tartar tenth does not seem to take much to commercial pursuits.

Around Newchwang most of the money made during the war by coolies, etc., has already gone into the channels of trade, and there is not much now with the mass of the people. The farmers had prosperous crops in 1905 and again in 1906, but they needed them to repair war losses, and as the money comes hard and slow they hold to what they get. The standard basis of calculation for a crop in Manchuria is 10, so the report that the past season's crop was 11 means a bumper yield. The customs picul or weight measure is 133⅓ pounds, but the Newchwang picul is only 122 pounds. There is a tendency at Newchwang to buy direct, and in future, with better banking facilities and increased shipping, a much larger proportion of the goods are expected to come direct. The firm of Sargent & Co. is at present the only American business house in Newchwang.

HANDLING CLOTH.

The following gives an idea of the cloth handled by one merchant, and is a list furnished by one of the Newchwang merchants in China, and translated from his daily quotation of November 19, 1906. They are in the order of the original market report, and quotations are only on such as he happened to have that particular day:

[32d year Kuang Hsu, 10th month, 4th day.]

Chop (trade-mark).	Small coins per bale.	Cents gold per yard.	Chop (trade-mark).	Small coins per bale.	Cents gold per yard.
Sheetings (20 pieces to bale):			Sheetings—Continued.		
Buckshead	$6.30	8.3	Two sheep	$4.80	6.35
Indian head	6.20	8.18	Japanese:		
Dog's head in circle	6.20	8.18	Three fish	5.20	6.85
Old two hans	5.30	7.00	Red standing horse	5.10	6.75
Flying man	5.65	7.45	Two fish	5.00	6.60
Blue cow	6.10	8.05	Two deer	5.00	6.60
Small horse head	5.30	7.00	Three bats	4.20	5.55
Golden horse	6.30	8.3	Man and donkey	4.90	6.45
Big hawk	5.50	7.25	Two crabs No. 1	5.40	7.15
Three hans	5.60	7.40	Two crabs No. 2	5.25	6.90
Dog and horse	5.40	7.15	Two crabs No. 3	5.20	6.85
Mandarine	5.70	7.50	Drills (15 pieces to bale):		
Magpie	5.10	6.75	Dragon	6.20	8.18
Running horse	5.30	7.00	Man, horse, and bow	6.10	8.05
Big horse head	5.10	6.75	Two hans	6.00	7.90
Melon and dog	5.00	6.6	Horse	6.05	8.00
Big dog's head No. 1	5.55	7.3	Small horse head	6.00	7.90
Big dog's head No. 2	5.45	7.2	Four hawks	6.00	7.90
Big and small hawk	5.10	6.75	Nine bats	5.55	7.30
Cow and straw	5.25	6.90			

MUKDEN.

MERCHANTS WERE DEPRESSED—BUSINESS STAGNATION.

Mukden is the Manchu name of the capital of Fengtien Province, the Chinese name being Shenking. The city is some 320 feet above sea level and lies in a level country.

It is surrounded with a great turreted wall, which at places must be over 30 feet high, with eight gateways with battle towers over them.

Outside the city proper there is a large suburb surrounded by a mud wall. The streets are mostly narrow affairs, but the main avenues to the gates are wide, and recently a Japanese has secured the contract to macadamize them; also the road from the town proper to the railroad station, which is being well graded and macadamized and brick ditches put in, so that when completed this will be a fine boulevard. The town is heavily policed, most of the police carrying 30-inch "billies," while the main entrances are held by soldiers armed with rifles. The gates are shut at 11.30 each night and thereafter the password is required; and the police at night are armed with rifles. The Chinese claim about 300,000 population, but well-informed foreigners say that the population is really about 150,000. At present there are British, German, and American consuls at this place—also Japanese; and there are a couple of regiments of Japanese here who are mostly encamped outside the gates near the railroad station.

There are very few foreigners in Mukden besides the Japanese. Besides the three American consular officers, the only American citizen here is O. M. Farnham, who is starting in business with a Chinese firm and expects to introduce American plows, machinery, and piece goods. He is a native of New York and an ex-sergeant of the Ninth United States Infantry. With the exception of E. A. Sargent, of the well-known firm of Sargent & Co., Newchwang, Farnham will be the only American merchant in Manchuria, a country with which the yearly trade of the United States runs up into the millions.

At Mukden, the Chinese now claim that as their proclamation of June, 1906, declaring Mukden a free port was voluntary, Mukden is a "self-opened port," and they therefore have the right to impose restrictions. The restriction that they seek to enforce is, that no foreigner shall transact business within the city gates, but shall do business only inside a foreign reservation set aside outside the city. The many small Japanese merchants and the large Japanese agents intend to stay where they are.

JAPANESE INDUCEMENTS.

At Mukden the merchants were more depressed than at any place I visited. They expected a good many failures about Chinese new year (February 13) and were despondent as to the outlook. Usually the big merchants at Mukden keep agents at Newchwang most of the time, always during the busy late fall season, to keep them in touch with the market and to buy and forward goods, but all of these have now been withdrawn, though this was usually the time of year that they are busiest. As one merchant said: "What is the use of my buying 50 bales of sheeting this week, when my next-door competitor can buy the same goods next week, perhaps a tael a bale cheaper and undersell me?" At another big merchant's place the staff of men were sitting around doing nothing. Asked in regard to business, the merchant said in reply that if a person had come to see him at this time in a usual year there would have been difficulty in getting in on account of the compound being so crowded with goods and the store crowded with merchants buying. "But," he added sadly, as he waved his hand at his big compound almost barren of goods, "you didn't stumble over many bales or have to push much to get in here, did you?" The stock

of goods on hand at Mukden is somewhat smaller than usual, though some of the merchants have some goods at Newchwang, and one merchant stated that he had goods bought and stored in Shanghai but could not afford to ship.

Usually at this season of the year there are between 5,000 and 10,000 bales of American goods in stock here, but now the stock of American goods is not over 2,000 bales. The Japanese stock is about 3,000 bales. There are more Japanese than American goods on hand at this place. Mitsui Bussan Kaisha have agents here, located in a new building, and have offered the largest Chinese firms special inducements to handle their goods. According to the Chinese they buy the goods at least 30 cents Mexican, say 17 cents gold a piece, cheaper than American, are paid 2 per cent commission for selling, and get 30 days' credit. This last practically means that they do not have to pay for the goods until they have sold them. One merchant said that he simply acted as a commission agent and got 2 per cent for selling, the goods belonging to Mitsui, so he only had to settle after selling. Mitsui also handles some American goods, and a Chinese merchant making a contract with Mitsui can obviate the necessity of an agent at Newchwang, and Mitsui will furnish him either American or Japanese goods, according to the requirements of his trade, paying the commission and naturally giving special facilities on the Japanese goods. These American goods are bought by Mitsui at Shanghai and Chefoo. During September, the first month of open trade, there was imported into Dalny from ports other than Japanese ports 377 bales classed as cotton cloth and 71 bales classed as muslin, and these I take to be cloth bought by Mitsui at Shanghai, mainly American, and shipped in through Dalny. They also bring some in through Newchwang.

COUNTERFEITING AMERICAN GOODS—RAILROAD DISCRIMINATION.

It was stated at Mukden and at other places that pedlers were selling Japanese cloth through the country with American brands. This was looked into and an effort made to procure some samples, but none could be found. However, from what the Chinese say, this is done to a certain extent by a few pedlers, but is not countenanced by the large Japanese agents. Though no samples of such cloth were obtained, this business of counterfeiting American trade-marks is probably carried on, as they have counterfeited labels on American ink and canned goods, and, as elsewhere reported, are casting at Newchwang plates from American stoves and leaving the name of the American town and state, etc., in the casting. It is at most a very small business and can not be noted as a reason for the increase of Japanese cloth in Manchuria. From what has been seen the increase is due mainly to cheaper price at a time when the people are looking for cheap goods, and, secondly, that the man who is pushing the sale of the goods is on the spot and is wide-awake.

Very few goods now come in by cart, as the railroad is displacing this method of transportation. The Chinese transport agents charge $1.50 Mexican a package of 120 catties (160 pounds) between Newchwang and Mukden, for freight and forwarding charges. This is about $1.74 gold a bale of sheeting and $1.10 gold a bale of drills. The freight per car from Newchwang to Mukden is $38.50 Mexican

($22.23 gold) and from Dalny to Mukden it is $40.30 Mexican ($23.37 gold). These are the prices the transport agents said they were paying for the small 7-ton freight cars in which there can be loaded a maximum of about eight tons. This is the only size freight cars used on this road. As showing the freight discrimination, the distance from Newchwang to Mukden is 115 miles, and yet the freight per car is more than from Dalny to Mukden, which is a distance of 246.82 miles, according to railway time-tables, or over twice as far. The two lines meet at a point called Tashihkiao, and from Newchwang to this point the rate is 5 cents Mexican (2.9 cents gold) a ton a mile. From Dalny to this point it is 2 cents Mexican (1.16 cents gold) a mile and from Tashihkiao north it is 2½ cents Mexican (1.45 cents gold) a mile. The Russians, when they had control of this line, practiced similar discrimination, and the Japanese can hardly be blamed for trying to use the railroad as a lever for building up their port at Dalny, but it would be better for the country as a whole if all were placed on an equal footing.

In order to prevent an influx of goods by way of Hsinmintun, reached from Tientsin by the standard-guage Imperial Railway of North China, the Japanese have fixed the rate on the 40-mile stretch from Hsinmintun to Mukden, controlled by them, at 5 cents Mexican (2.9 cents gold) a mile. The status of this stretch of road is not clear, the Chinese insisting that as it forms a link between the capital of China and the imperial city of Mukden it must be in Chinese hands; but the Japanese are operating it at present, and it will probably remain in Japanese control for a number of years.

CONFUSED BY NEW CHOPS.

At Mukden some of the merchants complained of the number of new American chops that had been pushed in here in the last year or two, saying that they got the average Chinaman confused. The "Buckshead" they knew, the "Flying" and the "Running horse," the "Three hares," etc., the old chops, but of the new chops the buyer didn't know whether he was buying American, Japanese, or what not, and the small straight letters at the bottom reading, "manufactured in United States of America," which formerly, though the Chinaman could not read, was regarded as the stamp of good quality and pure-sized goods, no longer has that value, due largely to the fact that so many inferior American chops have come in with the same wording; also, in a smaller degree, to the fact that some Japanese peddlers put on the same stamp.

At Mukden piece goods were a little higher than either at Newchwang or Tieling, but were yet not in proportion, so that goods could be brought in from Shanghai without loss. The stock of Chinese native cloth at Mukden was, like the other stocks, rather small, being only about 1,000 to 1,500 bales. Of the 500 or 600 bales of yarn on hand, the majority was 10s, and of this the larger proportion was Indian. The 10s made by an Indian mill and sold here by Mitsui Bussan Kaisha were quoted at $115 Mexican per 400-pound bale, or 16⅝ cents gold a pound. The 16s of a Japanese mill "Blue fish" chop was selling for $141 Mexican a bale, or, say, 20.3 cents gold a pound.

Gray and white shirting vary, so that it is useless to give prices on these, but on gray shirting "Blue dog" chop was selling at $5.30 and

"Green dog" chop for $5 Mexican a 38½-yard piece, or, say, 7⅞ and 8 cents gold a yard, respectively. The 40-yard gray shirting with "Man and sword" chop was selling for $7.50 Mexican, or, say, 10⅞ cents a yard. The Chinese usually call white shirting, which is wider than sheetings or drills, "big foreign cloth." One of the most common brands is the "Saints and tiger" chop, which was selling for $5.80 Mexican per 38½-yard piece, which is 8 cents a yard. Of the finer grades of white sheeting, the glazed finish sold for as high as $11 Mexican and the pure finish $9 Mexican per 40-yard piece, which would be 15.95 and 13.05 cents gold a yard, respectively. Samples of the foregoing have been forwarded the Bureau of Manufactures. There is no fire insurance at Mukden. The charge for warehousing goods for any length of time is 30 cents Mexican a bale, 17.4 cents gold.

TIELING.

AN EXTENSIVE DISTRIBUTING CENTER.

Tieling is one of the most important Manchurian distributing points for American goods. The name means "iron range," being so called from the range of hills near by in which iron is found in large quantities.

The city is about 44 miles north of Mukden and on the main line of the Japanese railway, the town proper being about a mile from the station. It is a walled city and is a strategic point, so that it is held by a large force of Japanese and is the main headquarters for their troops that are still scattered along the railway between Dalny and Menkiatun. Tieling is situated on the great caravan route that in former times ran from Tientsin to Kirin. It owes its later increased importance to the fact that it is near the Liao River, which makes a wide sweep into the east at this point and sends a branch, the Ts'ai River, up to the city itself. It is the main point when goods coming up the Liao River are landed for shipment by cart to the interior and, until the railroads recently cut into this business, has been the great point at which the beans were loaded on boats for shipment down the river to Newchwang. It is still the center for the bean trade of Kirin Province, and at the time of my visit was shipping over 10 cars a day. On account of the railroad discrimination in rates, most of this trade is now going to Dalny instead of Newchwang, as formerly.

On account of the lack of cars on the Japanese Government Railway, 1,000 having recently been reshipped to Japan, preliminary to the widening of the track from 3 feet 6 inches to the standard 4 feet 8½ inch gage, which is to be done upon the transfer of this line to the South Manchurian Railway Company next spring, there are now stacked up at this place 5,000 dan of beans of the old crop and 15,000 dan of the new. A dan is 300 catties or 400 pounds; so this is 2,000,000 pounds, or 1,000 tons, of the old crop and 6,000,000 pounds, or 3,000 tons, of the new. This is partly due to the freight blockade—there are stacks of beans at stations all along the line awaiting shipment—and partly due to this year's bumper crop. The price now is $7.50 a dan in Fengtien Province small coins—say, $19.38 gold a ton.

As is well known, pulse or beans is the great money crop of Manchuria, mostly coming from Kirin Province, just to the north and east of Tieling, which makes this a very important center. The most important agricultural production of Manchuria is really tall millet, but the greater amount of this is consumed locally, and beans is of much greater importance as an export article. There are a great variety of these beans—the yellow, the green, the black, the white, the red, and the small green. The yellow, green, and black are varieties of the soy bean. The yellow and the green form the great bulk of the export trade and are also the material from which is obtained the important commercial bean cake, which is used for animal food, for fertilizer, for fuel, etc., and that, like the beans themselves, is mostly exported to Japan.

TIELING'S IMPORTANCE.

While smaller than Mukden, having probably 60,000 against probably 150,000 inhabitants, the business of Tieling, especially in cotton piece goods, is more important. Mukden supplies only the town and its immediate vicinity, while Tieling supplies interior points west, north, and east. It received quite an access of population during the China-Japanese war, when large numbers fleeing northward from the Liaotung Peninsula settled here and at Hai-lung-cheng to the northeast, but it suffered during the Russo-Japanese war. At Tieling there was more activity manifested in buying winter supplies and the merchants were much more cheerful than at Mukden. One or two reported that the demand was fully normal and the sole trouble was the too large supply, which made each lot of goods bought from Newchwang cheaper than the last, which naturally offered no inducement for the merchants to lay in a large stock of goods or for the people to buy heavily. The majority of the merchants report sales much less than usual and that, for the town as a whole, where there was usually sold at this time of year 200 to 300 bales a day they now were only selling 40 to 50.

JAPANESE CLOTH SUPPLANTING AMERICAN.

The stock of goods on hand as a whole is only normal, but the American stock is much less than usual. There was not over 1,000 bales of American, while the Japanese stock was 2,000 bales or over. The Japanese stocks were larger, even though the demand for their goods was better, as the merchants have not bought many American goods during 1906. One firm reported that usually they bought about a thousand bales American goods, but during 1906 less than one hundred and fifty. The depression in business was given as the main reason, though the fact that there was on the part of the country people a demand for the cheaper Japanese cloth led them to handle a good deal of that.

Three of the largest Chinese merchants are acting as agents for Japanese goods and are pushing their sale. The goods are supplied by a resident agent of Mitsui Bussan Kaisha, on the same terms as noted at Mukden and Newchwang. The cart hire from Newchwang to Tieling is $4 Mexican, say, $2.32 gold, a bale in small lots and less in large lots. Most of the goods, however, are now coming by rail. The cost per bale, freight, Newchwang to Tieling, was given as $2.60

in Japanese yen notes, say, $1.40 gold, besides cartage from the station.

As Newchwang merchants charge 2 per cent commission for selling and there are exchange charges the net cost of goods here would be between 20 and 30 cents apiece more. Usually goods retail here from 60 cents to $1 apiece more than at Newchwang, but they were selling in November, 1906, at 10 to 30 cents gold apiece cheaper. Japanese sheeting was 10 to 30 cents gold cheaper per piece than American.

Some of the prices at Tieling in small coins per bale and gold per yard equivalent were, on November 4, 1906, as follows:

	Per bale.	Cents gold per yard.		Per bale.	Cents gold per yard.
American sheeting:			American jeans (beaver)	$5.50	7.25
Buck's head.....	$6.20	8.18	English white shirting, 40 yards.	5.80	7.66
Dog's head in circle.....	5.95	7.85			*Cents per pound.*
Three hares	5.70	7.52	Japanese yarn:		
Large dog's head.....	5.40	7.12	Kanegafuchi blue fish. (16s.	140.00	18.5
Dog and deer.....	5.35	7.06	(10s.	115.00	15.2
Japanese sheeting:			Osaka standing horse (16s)	136.00	17.95
Two crabs (best brand) ..	5.50	7.25	Indian yarn (supplied by Japanese):		
King's Mills (man on donkey).	4.80	6.34	Bridge and boat....(10s)..	114.00	15
Osaka blue chicken	4.60	5.94			
American drills:					
Dragon.....	6.00	7.92			
Lion looking back.....	5.80	7.66			

KWANCHENGTZE.

MANCHURIA'S LEADING INTERIOR EMPORIUM.

Kwanchengtze is the most important interior trade center in Manchuria. It is in Kirin Province and is a larger distributing point for American goods than any other, with the exception of the entrance port of Newchwang.

Kwanchengtze is about 125 miles south of Harbin and 435 miles north of Dalny. At present it is the southern terminus of the Russian train service coming south, and is about 7 miles north of the Japanese terminal. The Japanese service is to be pushed up to this point in the spring, when a neutral station will be built. All passengers from Europe to the east by way of Siberia will have to transfer here, as the gauge of the lines will be different.

A railroad is also to be built next year (1907) from Kwanchengtze to Kirin, 80 miles to the eastward, either by Japanese or Chinese, probably by the latter. This will make Kwanchengtze the meeting point of the lines of three nations, Russian, Japanese, and Chinese, and will make it, what it practically is now, the central mercantile point of Manchuria. The population of Kwanchengtze, like that of any Chinese town, is uncertain, but the best authorities put it at between 100,000 and 125,000.

SLIGHT COMPETITION FROM VLADIVOSTOK.

At Shanghai it was said that north of Tieling the country was supplied from Vladivostok, the region south of there being supplied from Newchwang. This was found not to be the case. Vladivostok does

not seem to be supplying the country south of the line of the Siberian Railway. It supplies goods to Harbin, Tsitsikar, and other northern and western points, but not southern. In fact, according to several transport agents, Harbin itself is being supplied from Kwanchengtze to a certain extent, and 200 or 300 bales a month of American piece goods are being shipped from Kwanchengtze to Harbin. Almost invariably when asked where the goods came from the merchants replied "Yingkow" (Newchwang). Both at Kwanchengtze and Kirin American canned fruit, meat, etc., also some cloth, were observed that had come from Vladivostok, but the proportion was small, and, generally speaking, it may be said that Vladivostok is as yet a small factor in the trade of these two points, and that they are supplied wholly from Newchwang.

The writer expected to find Russian trade interests very large, but with the exception of the flour business it could not be seen that Russian trade has any hold on Manchuria south of Harbin. The flour is made at Harbin from Manchurian wheat, and so is really native, not Russian, though the mills are owned and operated by Russians. At Kwanchengtze the Russians have one flour mill. They are reported to have 21 at Harbin. The Russian flour is put up in sacks of 100 pounds each, while the American flour is sold in 50-pound sacks. There was no American flour at Kwanchengtze, and the Russian flour controls the trade to about halfway between Kwanchengtze and Tieling, where it meets American flour.

OTHER ARTICLES OF TRADE.

Russian vodka, cigarettes, matches and a few small articles were in evidence, but of piece goods the quantity was very small. It was difficult to find a sample of Russian sheeting, but finally a merchant was located with three or four bales, of which a sample has been forwarded to the Bureau of Manufactures. The information was furnished that this was the only Russian sheeting shop in Manchuria. Though called sheeting it is only 28¾ inches wide and comes in rolls of varying length, from 60 to 70 yards, mostly about 66⅔ yards. It has 56 warp and 56 filling threads per inch. There were a few bales of Russian pilot cloth, velvet and drills in this section. The Chinese call the Russian pilot cloth "black-bear cloth." This comes in bolts 24 inches wide and 62 Russian yards long, and in bolts 27 inches wide and 69¾ Russian yards long.

American oil is used both at Kwanchengtze and Kirin. The people claim that the oil sold by the Russians has too much smell and smoke. Quite a business is carried on manufacturing utensils out of the square tins in which American oil arrives, and as at Mukden and other places, the lamp holders of the street lights are all made of this tin. They also manufacture cups, coffee pots, pans and a great variety of other things from it, besides using the cans whole as buckets and water carriers.

COTTON CLOTH STOCK FLUCTUATIONS AND MERCHANTS' DIFFICULTIES.

At Kwanchengtze there are at least 15,000 bales of American cloth, which is rather a heavy stock for this place. They are moving slow, and any new goods coming in simply stack up, as the people are

putting their money into fields, timbered hills, ponies, etc., and not buying cloth. Two years ago, according to the merchants, there was only a small stock on hand, but the rumor started that the Russians were going to buy 40,000 bales for army use as uniforms, tent cloth, etc. The rate was then about 9 cents gold a yard, but in anticipation of fancy prices to be obtained from the Russians later, all the merchants started in eagerly to increase their stocks. There were no great amounts to be had, and the price went up until in May and June, 1905, it was over 31 cents a yard. Everybody was buying, and then suddenly came the collapse and all the merchants lost heavily. The majority of the present stocks were pushed up here last winter, and the merchants, on account of their losses in value and carrying charges on the goods added, to their previous year's losses, have had a severe strain on their resources.

Goods are mostly stored for the smaller merchants by the large commission houses and these have some very good, well-built warehouses. The goods are mostly stored in the warehouses, a few being in the open compounds. Storage charges are 35 cents a package and no record is kept of time. Some merchants have had goods stored for a year, and the charge is the same as if they had stored for one day. There is no fire insurance in Kwanchengtze. The banks do not lend on stored goods, and the merchant must carry them himself, which ties up his capital and restricts his pushing other goods. At the only foreign bank the interest rate is 10 per cent, but native banks charge up to 96 per cent.

RUSSIAN DISBURSEMENTS—JAPANESE COMPETITION.

The people as a whole made considerable money from the Russian army. At one time Russia had 600,000 men at this point and was spending 3,000,000 rubles a day in Manchuria. The people sold all their old teams to the Russians and bought new ones from Mongolia. The favorite team of the country people is seven ponies hitched to the flat, long distance, two-wheel cart, one between the two shafts and the other six in two lines three abreast in front. The manager of the Russo-Chinese bank at this place illustrated the increased prosperity, by saying that before the war the Kirin teams had twenty-one legs, now they had each four apiece, or twenty-eight. There is to be noticed among these teams quite a large number of horses, a good many of which are evidently old cavalry horses.

In the winter of 1904 there was an average of two men found dead on the streets of Kwanchengtze every morning—homeless men frozen to death. Owing to the improved conditions such ghastly discoveries are not now made; the people have money and there are not so many homeless.

At Kwanchengtze, Japanese competition does not as yet amount to much and the field is controlled by American cloth. However Mitsui Bussan Kaisha has an agent there, who has made arrangements with two large Chinese houses to sell Japanese cloth on commission. As illustrating the progressiveness of the representatives of this firm their agent at Kwanchengtze, who pushed up here in August, was promptly captured by the Russians and jailed until the Spingai agreement—whereby Japanese and Russians were to keep out of the territory of the other—was annulled September 1. He spent twenty days in a

Russian prison, but as he told the writer he did not mind that, as the Chinese came to see him and he was able to get his arrangements made with them, so that the day the agreement expired he had goods ready, at the end of the Japanese railway, which at once went on the counters of these merchants and started active business.

The agents employed by this firm in Manchuria, of whom several were met, all seem to be young men, well educated, clever and capable and intent on business, which they are going after in a systematic, up-to-date way. Contrary to the small Japanese firms, who have no standing at all with the Chinese, Mitsui Bussan Kaisha is well regarded by the merchants and it is really the head and body of real Japanese competition in Manchuria, especially along textile lines. The small merchants are not only as a rule disliked by the Chinese merchants, who have a very high regard for commercial honesty, but even the better class of them are not able to handle piece goods for lack of capital. One of them in an interview, speaking of the large field opening up here for cloth, and regretting that he could not get his share of it, said that the least a man could start business with in this line would be 50,000 yen (yen 49.8 cents American) and that very few of the small traders now entering the country had over one-tenth of that. He was pessimistic as to the Japanese outlook, saying that the Japanese were not the people to open up Manchuria for three reasons: First, they did not have the money; second, they were accustomed to small operations and afraid to venture; and third, they were not qualified for the undertaking.

JAPANESE BANK—TRANSPORTATION FACILITIES.

At Kwanchengtze the Yokohama Specie Bank is expected to open a branch in the spring, which of course will greatly facilitate Japanese business there, and Mitsui's agent is now opening negotiations with Chinese merchants at Kirin so as to start their goods in Kirin at that time. At present their agents at Kwanchengtze are having trouble in getting suitable headquarters, as many of the lower classes of Japanese men and women, with whom Manchuria is flooded, have pushed into Kwanchengtze and caused disturbances, and officials have publicly requested the people not to rent more houses to Japanese.

At present nearly all goods come into Kwanchengtze from Newchwang, a few hundred bales only having come in from Dalny since September 1. These goods come by rail to the Japanese station Menkiatun, at the small Chinese village of Erhshilipu, and then by cart 20 Chinese li (a li is one-third of a mile) to Kwanchengtze. The only Japanese goods coming into Kwanchengtze at present are cigarettes, sugar, cotton yarn, and piece goods. The Japanese yarn is all 16s, and the 10s handled by them at this point is all Indian.

From Menkiatun the Japanese operate south two passenger and two freight trains a day. At Tieling there are four freight trains south a day, and at Mukden, eight. The freight cars used have a capacity of only seven tons. The transport agents charge $3 a package of 120 catties from Newchwang to Kwanchengtze, which includes the hauling from Menkiatun to Kwanchengtze, for which the rate separately is 40 cents a package. This is in Kirin Province small coins, worth in November about 45.55 cents gold, thus figuring out about $2.73 gold

per bale of sheeting and $1.84 gold per bale of drills between Newchwang and Kwanchengtze.

Chantou Gung Sze, the largest transport firm in Kwanchengtze, gave the following as the carload prices they had to pay: On piece goods, etc., Newchwang to Menkiatun, $112; Dalny to Menkiatun, $110; beans, Menkiatun to Newchwang, $90; Menkiatun to Dalny, $116; general cargo, Menkiatun to Newchwang, $145; Menkiatun to Dalny; $110. These prices are in Japanese war notes which is the only currency accepted on the Japanese Government Railway. At Newchwang this war note is at a discount of 3 per cent from the Mexican dollar, which is now worth 58 cents gold, thus the war note equals 56.31 cents gold, but at Kwanchengtze the discount is much greater and the war note as compared with other values is only worth about 51.02 cents gold.

Each car is seven tons capacity, but it can be loaded to eight tons or over. Fifty bales of sheeting or 35 bales drills are considered a carload. About 300 fifty-pound bags of flour can be gotten in a car.

BEAN TRAFFIC—RUSSIAN AND AMERICAN FLOUR.

There is a very large quantity of beans shipped from this point, but at present there is a lack of cars. There are about ten cars a day being shipped now, nearly all of which, on account of the cheaper freight, is, since September, being turned to Dalny. Eighty to eighty-five bags of beans are shipped to the car, a bag being supposed to weigh a full 150 catties, say 200 to 205 pounds. In shipping beans to Dalny the railroad brings the bags back free. The forwarding agents charge $19 Kirin small coins for hauling beans from Kwanchengtze and loading a car; this is say $8.65 gold. The present price of beans at Kwanchengtze is $8.20 a dan, which was stated to be 360 catties (at Tieling a dan is 300 catties), which is $2.30 a hundred catties, while the price at Dalny is $3.32 a hundred catties. These prices are in Japanese war notes and if these are taken at $56.31 gold correspond to $19.43 and $28.05 gold a ton, respectively, which makes shipping to Dalny an attractive proposition. Beans are dearer at Kirin than at Kwanchengtze just at present owing to the Russians there buying them for beancake for horse feed and fuel. There are about 15,000 dan, say 3,600 tons, on hand at Kwanchengtze now.

As has been stated, the transport charges Newchwang to Kwanchengtze is $3 in Kirin money, or say $1.37 gold per package of 120 catties. The transport charges per package Kwanchengtze to Harbin was given by the same firm as $2.50 a package, say $1.14 gold, and that there were 150 to 200 bales a month of American cloth being so forwarded.

Large quantities of flour are brought down from Harbin. The Russian flour is in 100-pound bags and the present price was given as 6.80 rubles, which if it be taken at its official value in United States money of 51.5 cents would be $3.50 gold or if the value of the ruble be taken at its comparative value with local money at this place of 48.65 cents it would be $3.31 cents gold. There is no American flour at this point as it does not come farther north than Chang-tu, some six stations south of Kwanchengtze and the transportation merchants reported that at last accounts the price there was $6.50 per 50-pound bag in Kirin province small coin, or say $2.96 gold. One cartload

of American flour was seen that had come in by way of Vladivostok, going from Kwanchengtze to Kirin, but the transport agents who handle this business said that it was an exceptional shipment.

KIRIN.

LONG-ESTABLISHED TRADING CITY.

Kirin is the capital of Manchuria's rich central province of Kirin. The wall only surrounds the town on three sides, the Sungari River forming the barrier on the fourth.

Kirin is situated in a mountainous district and the city itself is on a flat plain, or rather tableland, completely encircled by mountains. It is reached from Kwanchengtze by two steep passes through the hills. Formerly most of the goods reached Kirin from Newchwang by means of great caravans of carts that came by way of Mukden, Tieling and Yi-tung-chau. During the spring and summer goods were floated up the Liao River to Tieling and carried thence by cart. At present nearly all goods come by rail to Kwanchengtze, or rather to the Japanese station at Menkiatun, which the Chinese call Erhshilipu, 7 miles south of Kwanchengtze, and thence by cart 80 miles to Kirin. The transport merchants say that during the busy season there are over 500 carts a day each way. The road is not a bad one to travel except for the last 10 miles through the hills near Kirin, where it is very rough.

Kirin is built mostly of brick with tiled roofs, and the mercantile establishments are the finest that were seen in Manchuria. Some of the streets are paved with wood, 4-inch Chinese oak planks laid cross wise, in much of the business section. In some parts of the town these are now being taken up and the streets macadamized and drained. The streets are mostly very narrow and ramble in and out and around corners in true Chinese style.

This place has many merchants and some of them have very elaborate establishments. One firm visited had a bank in connection with its mercantile department to facilitate the handling of business, and had 200,000 taels capital stock in the mercantile department and 200,000 taels stock in the banking department, or a total of 400,000 taels, or, say, some $300,000 gold. This firm had over 100 men employed in its business and some two dozen merchants, or, rather, agents of big firms from all over Manchuria, from Newchwang to Harbin, connected with it and staying at the place of business. These outside merchants really handle the business of getting goods in here, acting through transport agents, and of selling goods to interior points, and pay the big local firm, which is really a commission house, so much commission. This business, from what could be seen of it, is really very well organized, even according to western ideas, and those at the head are shrewd, honest, capable business men. Though they can not read the strange English lettering on the cloth, and in buying are governed by the chop, they know as well the quality of the goods they handle as any New York commission house, and are as quick to detect any deterioration in quality or a slight change in construction. Their mercantile establishments and warehouses surpass any in Newchwang, Mukden, or Tieling, and it seems that the farther north one goes the finer are the merchants' places of business.

A description of one store at Kirin may be of interest. Facing on the street is a high wall, 10 feet or over, built of solid brick, burned a dark gray (the Chinese despise a red brick, which they regard as only half made) and which is "guaranteed to last ten generations." These walls are often 18 inches thick. Outside is a great pole braced by two blocks of stone and some 30 or 40 feet high. Halfway up this is their sign, which extends out both ways and is frequently elaborately carved, gilded and colored, and on the top of the pole is set a flying dragon, a kangaroo, or some such figure. Over the great gateway is a space cut in the stone inserted in the wall on which are raised stone letters, gilded on a black or blue background which give the firm's name in Chinese characters. Inside this great outer wall there is frequently a small courtyard and then another wall and gateway. Inside this is the compound, and in the background the solid built, gray bricked, tiled roof buildings of the firm, the doorway of which is usually reached by three stone steps. Inside the compounds, which sometimes are an acre in extent, is room for the country merchants to unhitch and leave their carts and teams while in the city. Goods covered with matting are frequently stacked up here for sale or storage. The warehouses proper of the firm are usually in the rear of the main building and are very solidly built. The walls are usually 12 inches or more thick, the floor of heavy oak planks, the posts 10 inches square, and the tiled roof supported by heavy beams. The window spaces are barred and have iron shutters, and the doors are heavy iron affairs which are unlocked with 6-inch keys. Inside, the bales are stacked up in regular rows reaching almost to the top. These buildings are really standard fireproof construction, and are a long way ahead of the majority of the warehouses used for storing goods at Newchwang, which are simply mud-floored, mud-walled and with mud-packed roofs.

INTERIOR ARRANGEMENTS.

Inside the main building, which is only one story, there are rooms on each side the entrances opening into each other, and each with brick or heavy oak floor. Around three sides of the room stretches the brick-faced, raised, mud embankments or "kangs." On these are spread mattings, and here the merchants sit in the daytime and at night roll out their blankets for sleeping. On this "kang" will be one or two little tables a foot high and a rug on the "kang" on each side. Visitors are met at the door, everyone bowing, then conducted to the "kang," tea served from the pot that is always kept over the open fire in a raised mud or brick pillar in the center of the room, the pipe lighted by the attendant and smoked by him a bit to get the tobacco well lit, and then passed over to the visitor. After smoking a while, business is commenced. On leaving, the visitor is always escorted to the door, and after getting out he turns and all bow. This is the invariable way in which business transactions are carried on among the merchants.

This description applies to the large wholesale or commission merchants. Some of the establishments of the large retail merchants are equally as elaborate, but they usually do not have the compounds, and the buildings are nearer the street. The transport agents usually congregate together in buildings on each side of very large compounds, which, like the others, are shut off from the street by high brick walls.

The merchants at Kirin claimed that this place is nearly twice as large as Kwanchengtze and that in a normal year it handled more goods than any other place in Manchuria with the exception of Newchwang. But it is probably as large or nearly as large as Kwanchengtze. They are probably correct in their claim that this place has done the largest trade in Manchuria, for not only are there over 100,000 people to be supplied in the city itself, but, according to the transportation agents, Kirin supplies the country north and south within a radius of 500 to 700 Chinese li or, say, 200 miles. It is a fact that at this point at present there are more goods stacked up than at any other point in Manchuria, not excepting Newchwang.

IMPORTANCE OF CITY.

At Kirin (a place 400 to 500 miles in the interior of Manchuria and 80 miles off a railroad) was found an accumulation of over $1,500,000 worth of American cloth. Kirin is simply a name to American manufacturers and even among the Shanghai merchants, some thousand miles or more away, the name is very little heard, but it is a very large piece goods center, and the trade here has afforded an outlet for millions of dollars worth of American cloth. Kirin is not only the capital of Kirin Province, but is situated on the Sungari River, which adds to its importance. Timber is floated down this river from the mountains to the southwest and wood is plentiful in Kirin. Compounds and vacant lots are fenced in with great palisades of heavy timber 10 feet high, which is quite different from the southern part of Manchuria where timber is scarce. The place is also quite a boat-building center and is sometimes called Ch'uan Ch'ang or "Dock-yard" from this fact. Large quantities of furniture are also made here and this and coffin making is quite an industry. Coming from Kwanchengtze 30 or 40 carts were met loaded with the heavy planks that are used for the large Manchu coffins, planed and grooved ready to put together. These were all being carried to Kwanchengtze.

Kirin is also a very large market for furs and skins, and wild game abound in the mountains to the southwest and in the wild country toward Vladivostok. Bears, tigers, leopards, wolves, sables, otters, squirrels, etc., abound. Quite an industry is carried on through this province in goat and dog farms, which animals are raised for their skins. The dogs have long hair and are raised on farms like sheep. Most of the cheaper caps in Manchuria are dog skins. A large number of these skins are exported to the United States through Newchwang and Tientsin, where they are sold under various names. Tanning is also extensively carried on in Kirin, and large quantities of the native shoes are turned out annually. There is one foreign bank here, the Russo-Chinese, but the bulk of the business is carried on by the native banks. These banks lend no money on stored goods which have to be carried by the merchants. In fact, the banks make few loans direct, most of their capital being used in financing matters connected with the payment for goods at other points. In this way they keep their capital in active circulation.

FORMS OF REMITTANCES.

If a Kirin merchant had to pay a Newchwang merchant 1,000 taels cash for goods bought, he would have to pay the banker at Kirin 1,100

taels, and the banker through his agents at Newchwang would pay the Newchwang merchant the 1,000 Newchwang taels. This seems a very high charge, and it is; but a Newchwang tael is worth slightly more than a Kirin tael (just now 1,000 Newchwang taels equal 1,007 Kirin taels). To make the payment the banker must keep large sums at Newchwang and other points. Unless the trade balance for beans, etc., shipped from his province is in his favor he must ship Sycee (silver) running the danger of robbers, etc. The risks are large and the charges correspondingly great. The rate of interest at Kirin is 8 to 9 per cent a month, which is at the rate of about 100 per cent a year. This does not mean that the bankers get 100 per cent a year, as the money is idle a good part of the time. The men who seem to make the steadiest profits are the big capitalists who finance the merchants, supplying them with working capital and money with which to store goods. These are not bankers who, as explained above, keep their money in the active channels of trade, but are retired merchants, officials (sometimes), and other men possessing idle capital. They usually make big profits, but in a time of depression like the present, when the goods loaned on are continually depreciating in value and merchants go to the wall, they sometimes lose heavily.

INSURANCE AGAINST ROBBERY.

There seems to be more money in this upcountry and there was not the talk of failures expected at the end of the quarter that was heard so frequently at Newchwang and Mukden and to a lesser extent at Tieling. On inquiry they said there would probably be some failures among the smaller merchants, but this was usual at the end of the year and there was not expected to be many more than usual. In the case mentioned where a Kirin merchant had to pay a Newchwang merchant 1,000 taels, if this were to be paid in transfer instead of cash taels he would only have to pay in at Kirin 984 Kirin taels. In order to meet the balance of trade, silver ingots, called Sycee shoes, are shipped in bulk from one town to another. There are "robber insurance companies" in all the larger cities of the north and these guarantee the safe delivery of the silver and send along armed men. One of the Sycee caravans going from Kirin to Kwanchengtze was met on the road. There were about 20 of the Chinese two-wheel covered carts and from the top of each floated a triangular flag with a red border and the name of the insurance company in Chinese characters on the white center. Each cart besides the driver and an agent of the bankers carried an armed guard. These caravans guarded by the "robber insurance companies" are rarely attacked and it is claimed that they pay tribute to the Hunhutzes. The latter have been broken up in the south and are not the menace they formerly were in the north, large robberies being now comparatively rare. Still they exist and are a deterrent to free trade.

In paying for goods from Kwanchengtze, if a Kirin merchant hands over to the banker at Kirin 1,020 taels the banker's agents will pay the Kwanchengtze merchant 1,000 taels.

SHIPMENT, STORING, AND PRICES.

The cost per package of 120 catties from Newchwang to Kirin is $3.50 in Kirin money or $1.46 gold. Therefore a Kirin merchant wishing to have goods brought from Newchwang to Kirin pays the

transport agents the equivalent of $2.92 gold per bale of sheeting and $2.19 gold for a bale of drills, and the transport company attends to all the forwarding and delivery. Kirin formerly sold more goods than Kwanchengtze, but on account of the railroad connections the latter is now the great trade center. Practically all goods come in by the Japanese Government Railway and thence by cart. Some goods this year still came by boat up the Liao River to Tieling, thence to Kirin by cart, overland, but the railroad is rapidly monopolizing the traffic. The only goods that will come hereafter by cart all the way will simply be cases where carts have gone down with ginseng, beans, etc., and bring back goods at a low price simply to make something on the return trip. As railroads are carrying produce down and bringing goods back cheaper than the carts can hope to do so, this business is declining, and the thousands of carts that have been employed in this traffic every winter will hereafter be used simply in hauls where there are no railroads, such as the stretch from Kwanchengtze to Kirin.

If sent by cart all the way the cost varies from $4.50 to $7 Kirin money a package, or, say, $4.10 to $6.48 per bale of sheeting, against the railroad cost of $2.92, and even then at present prices this hardly pays for the ponies' "chow." By cart all the way the distance of probably 400 miles is made in about twenty days. The carters start at 2.30 in the morning and put up each evening at one of the numerous inns along the way, where the carts and ponies will be inside the walled compound of the inn and protected from robbers. They make about 20 to 30 miles a day, including stops at Mukden and other places. For short distances they frequently make 40 miles a day. For instance, the 80 miles between Kwanchengtze and Kirin is supposed to be made in two days. From Kwanchengtze to Kirin the rate is quoted at $1 Kirin small coins a package, which is, say, 91 cents gold per bale of sheeting and 68 cents gold per bale of drills. From Newchwang to Kirin by rail and cart goods come through in a week if traffic is not blocked.

CAUSES FOR BIG STOCKS.

The big stock at Kirin is due to several causes. In the first place, owing to the big profits that were made by some of the large merchants in the piece-goods business in 1905, many new firms were started. When winter set in the port of Newchwang was blocked with goods and the Newchwang merchants sent special representatives here and induced all the merchants to buy much heavier than usual in anticipation of a big spring business.

In the spring the people, who were already fairly well supplied with clothes, due to the large quantities bought in 1905 and smaller quantities purchased during the winter, refused to buy more. Goods were stacking up all during 1906, and in November there was very little coming in. Merchants estimate the stock on hand as sufficient to last six months to a year, and say Kirin will send no buying orders to Newchwang until next summer at least. For storing goods the big commission houses charge 20 cents Kirin money, say 9.11 cents gold, when a bale is put into their warehouses, and the same amount when it is taken out by the purchaser. No account is taken of time, and the charge is the same for a year as for a day. There is no fire insurance.

Some of the prices at Kirin, in Kirin province small coins, per 40-yard piece, and their equivalent in cents, gold per yard (assuming that

$1 Kirin money equals 45.55 cents gold) were, on November 12, 1906, as follows:

	Kirin money.	Cents per yard (gold).		Kirin money.	Cents per yard (gold).
American sheeting:			American sheeting—Cont'd.		
Buckshead	$7.00	7.95	Buffalo—		
Dog's head in circle	7.00	7.95	Old	$5.20	5.90
Flying horse	7.00	7.95	New	4.60	5.25
Indian head	6.80	7.75	Double fish	5.00	5.70
Man fighting lion	6.70	7.60	American drills:		
Running leopard	6.40	7.30	Dragon	7.00	7.95
Hawk and tiger	6.40	7.30	Men carrying cannon	6.50	7.40
Large dog's head	6.30	7.20	Big and small hawk	6.10	6.95
Running horse	6.30	7.20	Fox head	6.00	6.85
Three hares—			Calf's head in circle	6.00	6.80
Old	6.30	7.20	Small cat's head	5.80	6.60
New	5.50	6.25	American jeans:		
Horse and dog	6.00	6.85	Flying squirrel (beaver)—		
Two hares	6.00	6.85	40 yards	7.50	8.50
Big and small eagle	6.00	6.85	30 yards	5.70	6.50
Half moon—			English jeans:		
Old	5.70	6.50	Flying squirrel (beaver), 30 yards	5.40	6.15
New	5.30	6.05			
Blue elephant	5.20	5.90			

DALNY.

SLOW PROGRESS IN ESTABLISHING GREAT TRAFFIC.

Dalny is the name of the important port on the south shore of Talienwan Bay, on the east coast of Kwantung Peninsula, which is the extreme southern point of Manchuria. The port is called Dalny by the Chinese and Russians, but Tairen by the Japanese. This is not a different name, but simply the Japanese word for the same character that the Chinese call "Dalny." The Chinese is really the only universal language. Thus two sloping marks stand for "man" in English, "l'homme" in French, and for the different words in each language that are used to distinguish a man. Thus the Chinese and the Japanese using the same characters call them by different names, so that a Chinese and a Japanese can understand each other by writing but not by speech. All through Manchuria the names on the maps for towns and places are different on the Chinese and the Japanese maps, but the original Chinese characters are the same in each case.

By article 4 of the treaty between Russia and China, Dalny was set aside as a free commercial port, and was put under the control of Russia. Soon after taking charge the Russians commenced large buildings and a breakwater to shelter shipping from eastern gales. Piers, etc., were also built, and it was sought to make a model town and harbor at this point. This gave Russia an outlet to the sea that was open all the year round, and so was very valuable to them, as Vladivostok, their only other large eastern port, is ice bound a large part of the year. It was accordingly made the southern terminus of the Russian railway from Harbin to the sea, a distance of about 555 miles.

The Japanese since taking charge of the town have practically done nothing, due, it is understood, to lack of funds. They are finishing one pier, and a few Japanese companies, Mitsui Bussan Kaisha especially, are erecting buildings for headquarters. The Japanese complain that the military have heretofore occupied all the buildings, piers, etc., so that the merchants have been at a disadvantage, but the military are expected to be withdrawn to Port Arthur in the spring,

when the place will begin to build up more. The large Russian station was destroyed during the war, and the present station is only a small two-room frame building.

TRAFFIC VIA DALNY.

The port is a very fine one, though somewhat open, and there are four large piers. There are no harbor or tonnage dues except when ships lay up to the piers. There are three steamship lines making regular trips between Dalny and Japanese ports, the Osaka Shosen Kaisha and the Nippon Yusen Kaisha doing the bulk of the business.

The port has only been open to foreign vessels since September, and as yet only seven vessels flying flags other than Chinese or Japanese have come in at this place.

Newchwang is and has been for many years the great entry port of Manchuria and is the center of banking and exchange. The merchants are well established and the port itself is a good one. Efforts are being made to induce the native merchants to go to Dalny, and a few have done so, but the bankers refuse to move and the business therefore does not amount to much in this way. The bankers and merchants naturally prefer to remain at Newchwang, where they are established and will be under the rule of their own people, than go to Dalny where they will have to secure new quarters and be under the rule of Japanese.

Dalny is the port through which Japanese goods have been entering Manchuria free, while all American goods had to go by way of Newchwang and pay duty. It is the understanding now that the Chinese maritime customs are to be established at Dalny April 1, 1907. The Japanese authorities are reported to have declared that the customs will have to be on the border of the Kwantung peninsula and not in Dalny itself, and the papers reported that the reason of this was to get a rebate of one-third on goods entering Manchuria by rail, which is according to the treaty between Russia and China. The American consul-general at Mukden, however, has recently been assured that this movement is not contemplated by the Japanese Government, and that the duties when established will be the same as at Newchwang.

With the exception of a little trade with Chefoo and Antung, nearly all imports have come direct from Japan and are carried in Japanese bottoms. The imports are cotton cloth, quilts and yarn, saki, beer, rice, sugar, oil, tobacco, canned goods, hardware, nails, iron pipes, copper wire, zinc plate, steel rails, electric machines, glass, matches, paper, lime, coal, clocks, concrete, and lumber. The exports are almost exclusively bean cakes and bean products, with some millet, provisions, etc. The official statistics of trade, as furnished by the Japanese for the port, divide the trade into "Trade with Japan" and "Coast trade" (chiefly with Chefoo). The trade of Dalny for the fourth quarter of last year (1906) was as follows:

Month.	Trade with Japan.		Coast trade.	
	Exports.	Imports.	Exports.	Imports.
July	$498,930	$371,310	$3,421	$61,814
August	797,102	433,664	4,822	92,444
September	462,489	603,042	5,006	127,801

The importation of yarn and cloth for July, August, and September, 1906, was as follows:

	From Japan.				From Chefoo.			
	July.	August.	September.		July.	August.	September.	
			Quantity.	Value.			Quantity.	Value.
			Bales.				*Bales.*	
Cotton cloth	$30,814	$60,782	2,300	$118,033	.....	.....	377	$19,403
Muslin	48,451	76,539	782	23,285	$3,009	$4,287	71	3,850
Cotton yarn	67,369	17,720	3,387	129,882	5,145	10,866	87	3,080

The complete figures for October were not obtainable, but during that month there was imported from Japan 2,676 bales of cotton cloth, valued at $107,692; 1,530 bales of cotton yarn, valued at $73,308; also from America 60,597 bags flour, valued at $61,609, and 16,160 cases kerosene oil, valued at $21,398.

The two largest steamship lines making regular trips between Dalny and Japan are the Osaka Shosen Kaisha and the Nippon Yusen Kaisha. The first maintains four steamers from Osaka, via Kobe and Moji, reaching Dalny twelve or thirteen times a month. The second operates three steamers, of which two ply between Yokohama and Dalny, touching a few places on the way, and one between Kobe and Dalny. These steamers call at Dalny about eight times a month.

Dalny is a fine port and has no bar drawback. There are four large piers, one of which is in an unfinished state, and the deepest ships afloat can tie up at these piers. Stevedoring charges are 10 cents Mexican or 5 cents gold per ton of 40 cubic feet. Tonnage dues are 5 sen (2½ cents gold) per ton, the gross tonnage of the ship being the tonnage charged on. Wharfage dues are 5 sen (2½ cents gold) per ton of cargo. If a ship lies out in the bay and discharges by lighter, she pays no dues, either tonnage or wharf.

TIENTSIN.

PORT FOR PEKING AND SEVERAL RICH PROVINCES.

Tientsin is the great port of North China and is rapidly growing. This in spite of the fact that it is practically no port, certainly not a deep-sea port, being up the river 60 miles. The ships have to lie out at sea and discharge by lighter.

Geographically, however, Tientsin and its satellite, Chinwantao, are well situated, being the port to the capital of China and the outlet for several large and potentially wealthy provinces. As communications by means of wire and rail are increased through these provinces the trade will increase correspondingly.

Tientsin, next to Hankow, is the greatest exporter of goatskins, and for other kinds of furs it is the leading Chinese market. A large business is done in wool, which comes here from as far off as northern Tibet. There is also a large export trade in bristles and straw braid.

Just at present silver has appreciated in value, exchange has risen and is at the highest point it has touched for eleven years. The price of silver is still rising. The result of this fact is that export articles are being stored here instead of being shipped. There is an especially large stock of wool on hand, which will be held until exchange drops or until the dealer concludes to pocket his loss. In furs one merchant said they were now being sold cheaper in London than they could be bought from the dealer here.

FLUCTUATIONS OF EXCHANGE.

While the rising value of the tael helps the profit of the importing dealer in some ways, a violent fluctuation paralyzes trade. For instance, if the staple exports move freely most of the money received is used to buy cloth and other imports, but with the money tied up in stocks business is at a standstill.

The estimate of 16,200,000 pieces as to the stock of goods at Shanghai is accurate. Owing to the semiannual lists of stocks made up by the Shanghai Chamber of Commerce and the tab kept on the imports and sales by the firms issuing market circulars, the facts can be ascertained. At Tientsin it is difficult to get accurate returns. There are no chamber of commerce reports and no market circulars. Inquiry among the trade revealed a difference of opinion, and estimates ranged from 20,000 to 50,000 bales. This is partly due to the fact that besides the large lots being carried by the merchants for the dealers there is a large quantity that is being carried by the Chinese direct. The two leading firms estimated the stock at approximately 25,000 bales, say 500,000 pieces. There was more than this bought here, but owing to better carrying facilities considerable is still stored at Shanghai. A stock here of half a million pieces, while heavy, is not much more than the stock held in October of last year.

ADVERSE BUSINESS CONDITIONS.

To carry this stock is taxing the resources of the holders, and this, combined with the general depression and the chaotic monetary condition, is expected to result in the failure of several native banks and a good many dealers before many months. In this respect the condition is much worse than at Shanghai, where it was the opinion that most of the dealers and banks would be able to pull through.

One thing that affects this market more adversely in a time of depression is that, while at Shanghai the delivery terms are cash against documents, in Tientsin the terms are always sixty days. In fact, the dealers are gradually forcing longer and longer terms of delivery, and are enabled to do this by the efforts of a few firms to control the trade. If one firm grants three months' or four months' credit the others have to follow, and terms from four to six months have become frequent, and the dealers are trying to establish the six months' credit as the basis of their deals. This increase has virtually resulted, in many cases, in a system whereby the dealer only pays for one shipment when he gets another. He is, therefore, always one payment behind, and while this tends to keep his trade with one firm, it is a weak factor in the market when business lags.

The merchants here look for no business in the immediate future and for no new orders to be placed abroad for the next six months.

The present prospects are not good. The rice crop failures and the steep rise in the price of rice, due to this fact and to the efforts of speculators in rice, has made the price of their staple food almost prohibitive. At the same time the silver subsidiary money and copper cash used by the masses has greatly depreciated. There is expected to be great suffering among the masses in China this winter, and it is not improbable that this will result in serious disturbances, which will affect the trade.

BUYERS HOLDING OFF—BIG TRADE IN FLOUR.

Besides this the dealers that can buy are holding off, buying 5 bales where they formerly bought 50, and keeping their money idle, thus aiding the general depression. The reason that the dealers hold off, besides other causes, is due to the fact that the heavy stocks are causing prices continually to tend lower, while the purchasing power of the tael is continually rising. There have been only two factors that could force these dealers to enter the market extensively. One is higher prices for goods in America, which would steady prices here, and the other is a sharp drop in exchange. The first has recently occurred, but the other seems unlikely to occur soon, and with the purchasing power of the tael still rising the dealer will continue to refrain from buying.

The failure of the rice crops, while affecting most American business unfavorably, has yet been beneficial in a few instances. In flour, for instance, a strong demand has revived, and the people are using more flour per capita this year than ever before. The native flour mills at Shanghai have been unable to compete with the flood of higher quality and lower priced American and Japanese flour being poured in, and the bulk of the business is being done by the United States. At Tientsin the wharfs at the time of the writer's visit were piled high with shipments of American flour being rushed in before the winter. This revival in the flour trade with the United States will undoubtedly be a great aid to the Pacific coast flour mills, which for a time suffered keenly from the slackness of demand here. The consumption of flour is as yet a long way from the time predicted by an American magnate when every Chinaman shall consume a loaf of bread a day. The present demand is abnormal and is due to the failure of the Chinese staple food crops.

ADVERTISING METHODS.

AMERICAN REPRESENTATIVES AND EXPLOITATION OF GOODS ARE NEEDED.

In seeking the textile trade of Manchuria Americans are operating at too long a range, and they should get to close quarters and see what the trade is. Last summer four enterprising Shanghai merchants made a special campaign into Manchuria to discover the cause of the slack demand and the prospects of future recovery, and their discoveries were widely heralded. Their trip did good, and credit is due them for taking such an initiative; but the fact is that instead of having to make up special reconnoitering parties to see the land of the people who buy their goods, this is where they ought to be all the time—they or their representatives. There are

one or two English firms and one American firm at Newchwang handling American piece goods. They get some goods direct, but buy most at Shanghai, and they all sell to the Chinese dealers at Newchwang for cash.

The bulk of American goods for Manchurian consumption, however, is turned over to Chinese at Shanghai, and from there on is in Chinese hands. Nearly all American sheetings and drills brought into Manchuria are imported by Chinese. The cloth is superior to any other on the market, and sells itself. The Chinese merchants have, therefore, found it very profitable to handle, and so have bought and sold increasing quantities. As soon as these Chinese merchants find the cloth of some other country more profitable to handle, however, they cease to push the sale of American cloth and take up the cloth of competitors. This is a "hit or miss" method.

CHANGING MARKET CONDITIONS.

Heretofore this method of Chinese buying American cloth, transporting it a thousand miles, and inducing the natives to buy has worked all right, as there has been none other in the field except English cloth, which was inferior and was sold in the same way. Now a new competitor has arisen, and to meet his competition his methods must be adopted and Americans must push the sale of American cloth. A study of the Japanese methods will prove interesting.

When the Japanese armies pushed up into Manchuria the Japanese merchants quickly followed and began a careful and systematic study of the needs of the people—what they produced, what they had to import, and all details in regard to such manufacture or importation. As an instance, one merchant told me that he knew a Japanese to spend a week studying the methods of manufacture of the peculiar heavy cart used by the Manchurians for transporting goods, and paid $40 Mexican for a model to be constructed, which he took back to Japan with the object of making them cheaper by machinery and supplying the market. Another merchant said that the Japanese had thoroughly inspected his whole stock—canned goods, sugar, flour, cloths, etc.—and had bought and sent back to Japan samples of practically everything he carried, and duplicates were now arriving. In connection with this, however, the Chinese merchant says they could not reproduce "Stag's head," the highest quality American sheeting.

HANDLING JAPANESE CLOTH PAYS MERCHANTS.

The result of such study has been that the Japanese are gaining quite a foothold and are in many points distancing all other goods. Take textiles. At Mukden and at Tieling I found stocks of American goods, but on inquiring the market price of different chops was told time after time that any price quoted would be merely nominal, as there was no demand for them, but prices quoted on Japanese goods were nearly always the prices of that day's sales. The whole market was dull and the buying slack, but what demand existed was for Japanese goods. Several merchants stated that the people seemed to have "Japanese cloth on the brain" on account of its cheapness. As these people are conservative, it was evident that

there must be a cause for this, and it was found that the leading merchants at both places, men who formerly handled large quantities of American cloth, were handling Japanese cloth and pushing it in preference to American.

As one large firm at Mukden said: "Usually we keep an agent at Newchwang and either have an agent or connections at Shanghai, and in an ordinary year we buy about 250,000 taels of American cloth at Shanghai and 100,000 taels worth at Newchwang. This year we have bought less than 100,000 taels worth of cloth from both places and have withdrawn our agents." This is partly due to the fact of the extended depression in textiles, but partly to the fact that they are handling Japanese cloth in preference. Asked in regard to this, they stated that while they preferred American cloth they were in the business as merchants to make money and could make more money handling Japanese cloth. To buy American cloth they usually had to have an agent at Shanghai and ship in the cloth themselves, or at least an agent at Newchwang and buy at a somewhat higher price and ship up to Mukden; but in selling the Japanese cloth the agents of Mitsui Bussan Kaisha delivered it to them in Mukden 30 cents Mexican (15 cents gold) a piece cheaper than they could land the American cloth. Mitsui paid them in addition a 2 per cent commission for selling and gave them thirty days in which to pay, whereas before they had to pay cash and were often out money in advance.

JAPANESE SYSTEM.

The Japanese are not trying to sell to the consumer, but their plan is to have a Japanese agent at each of the important points offer inducements to the leading Chinese firms to handle Japanese cloth, and then this agent keeps watch on the market requirements and keeps the merchants supplied. The Shanghai merchants are a thousand miles away, and if, as occasionally happens, cloth turns up inferior to sample the Chinese simply say that that "chop stinks" and taboo it. If a similar thing occurs in a Japanese chop their agent is in the same town and can either explain away the supposed defects or promptly replace. Many other advantages of their system of operation might be named, but they are too plain to require mention.

Mitsui Bussan Kaisha have agents at Antung, Dalny, Newchwang, Hsinmintun, Mukden, Tieling, and Kwanchengtze, and expect shortly to establish one at Kirin. At Mukden and other places this firm has large headquarters, and at Dalny they are erecting an up-to-date building.

The real Japanese competition in Manchuria seems to be centered in this large company. It has a good reputation with the Chinese, and is one of the largest concerns in Japan, being interested in many different branches of work. It is a first-class, up-to-date organization, with a reputation for progressiveness and for reliability. In June, 1906, it undertook the work of exploiting in Manchuria the products of five large Japanese mills, and has agreed to do this for a year without compensation. It was agreed by the mills that they would ship at least a thousand bales a month to Japan, and that, whether the mills lost on it or not, the cloth would be sold cheaper than American. As a matter of fact, even at low prices now pre-

vailing, the venture is paying well. The Japanese mills pay little freight, some of them loading on ships direct, and the steamer rate to Dalny is only 3 yen a ton, or, say, 30 cents gold a bale. The mill delivers the goods to Mitsui and this firm lands them at the door of the Chinese merchant at Tieling or Kwanchengtze.

AMERICAN DISADVANTAGE.

American cloth, on the other hand—as against the Japanese 30 cents a bale, Japan to Manchuria—has to pay, from New York to Shanghai, $12.50 a ton, and Shanghai to Newchwang 5 taels a ton, or a total of $3.25 freight a bale. The freight rates are, then, higher from Newchwang to the interior than from Dalny to the interior. The roads from these two places join at Ta-shih-kiao. From Newchwang to Ta-shih-kiao the rate per mile is 5 cents, from Dalny to Ta-shih-kiao it is 2 cents, and from Ta-shih-kiao north it is 2½ cents. To prevent goods coming from Tientsin the rate from Hsinmintun to Mukden is also made 5 cents a mile.

As against the one middleman between the Japanese mill and the Chinese merchant at Kwanchengtze, there are in our system four foreign and usually two or three Chinese intermediates. Under these circumstances, not only do the Japanese produce goods cheaper and get them to the consumer with much less cost for freight and handling charges, but they have the advantage of having their own agents there to supervise the sale and watch the market requirements. To meet this competition, all unnecessary links should be cut out, and either the New York commission house or, at least, the Shanghai foreign merchant should open branches at the important centers, managed by white men who would deliver the goods to the Chinese merchants in the same way as do the Japanese agents.

One agency should be either at Newchwang or Dalny, as found most profitable, and the other branch in the interior, at either Tieling or Kwanchengtze, if allowed; if not, at Mukden. Mukden has an important trade, but the two distributing centers are Tieling and Kwanchengtze. Such agents could look after freight and finances, and should employ Chinese-speaking foreigners or reliable Chinese as compradores to travel and to look after the sale of their goods and form connections at such points as Kirin, Harbin, etc. This may seem a novel suggestion, but from talks with Chinese merchants and from an inspection of the present results of advertising in other lines I am convinced it would pay well.

POSTER ADVERTISING APPEALS TO PEOPLE.

Practically the only things advertised to any extent in Manchuria at present are tobacco and Japanese patent medicines; but their posters are seen everywhere, even over the city gates. As most of the Chinese official proclamations are posted up on walls and street corners, the Chinese seem to have a natural curiosity as to anything posted up with writing on it. I have seen a crowd pack around a new patent medicine poster for half an hour, while those who could read expounded it to those who could not. The greatest advertising expenditure in Manchuria is being made by the British-American Tobacco Company, a concern with a British charter but largely

owned by Americans, which is thus securing the field for its lines. [The Bureau of Manufactures has on exhibit one of this company's cigarette posters.]

The Japanese cloth has been enabled to obtain a good foothold in Manchuria by the fact that it is cheaper, backed by an organized effort to impress this on the people. The merchants and the more intelligent city people prefer American cloth, because they know it is of superior quality, with longer and finer staple, and of better wearing qualities. The country people, however, especially in a time like this, buy one piece in preference to another on account of the relative cheapness, know nothing of where either piece comes from, and they can not discriminate so well as to the quality. If some merchant or mill were enterprising enough to get out posters in Chinese, headed by the same chop appearing on their cloth, calling attention to the superior cotton used, the superior methods of manufacture, and the better wearing qualities, the venture would undoubtedly greatly assist the sale of that cloth. From the results obtained by patent medicines and tobacco companies, advertising seems to have the same effect in stimulating and holding trade that it has in America.

ESTABLISHING AGENCIES—DALNY SHIPMENTS.

If the Shanghai merchant or the mill established an agent in Manchuria, they would, of course, try to cut out the transshipment at Shanghai and ship direct.

The main difficulty in regard to establishing direct houses or agencies at Newchwang or in the interior is supposed to be the lack of banking facilities; and if the International Banking Corporation or some other American or English bank were to open at Newchwang, it would be a great advantage to our trade, and, with the natural increase to be anticipated, now that the country is for the first time really being opened up, would eventually prove quite profitable. At present, however, there are two banks at Newchwang—the Russo-Chinese Bank and the Yokohama Specie Bank—as well as agents for other banks; so the foreign firms there experience little difficulty. At Mukden both these banks have branches, and the Russo-Chinese Bank has branches both at Kwanchengtze and at Kirin. The Yokohama Specie Bank also expects to open at Kwanchengtze in the spring.

It is a fact that it is a physical impossibility for Japan at present, with less than 10,000 looms on cotton goods, to monopolize the Manchurian market, but unless Americans adopt more modern methods of competition Japanese cloth will get such a hold there that it will curtail the sale of American cloth. That the present work of the Cotton Cloth Export Association is profitable and their cloth is being used is shown by the increased shipments. It was originally intended to ship 1,000 bales monthly. In September there was imported at Dalny direct from Japan 2,300 bales classed as cotton cloth and 782 classed as muslin, and in October there were imported 2,676 bales classed as cotton cloth. They are therefore now importing 2,000 to 3,000 bales monthly. Their direct importations of cotton yarn have also greatly increased.

Their importations direct of cloth and yarn into Dalny are given as $146,634, $154,944, $271,200, and $181,000, respectively, for the months of July, August, September, and October. Other Japanese mills are installing looms specially for this trade and new mills are being built; so if the present profit continues, Japan's competition will yearly become keener.

SHEETINGS AND SHIRTINGS.

COMPETITION IN THE CHINESE MARKETS.

On inquiry among merchants at Shanghai and Tientsin I have found that the samples of cotton piece goods forwarded to the Bureau of Manufactures by other special agents during the year 1906 fully cover the field. There have been no special new goods introduced, and variations in patterns are so many that a sample of one is sufficient, as the entire line can not be covered.

I have been struck by the fact that America, while having a large market in cotton piece goods in China, competes only on coarse, unfinished goods, and drops out of the race when the competition is on fine or finished goods. On drills and sheetings we control, on gray shirtings we compete to a small extent, but when it comes to white shirtings, prints, sateens, Italians, lastings, fancy woven cottons, etc., the returns very often do not specify the "United States," but class us among "Other countries." In fact, in general terms, it may be said that the United States competes abroad in no cotton goods in which labor is an element.

AMERICAN LEADERSHIP IN SHEETINGS.

On coarse goods, such as heavy drills and sheetings, it is safe to say that the raw material will be one-half to two-thirds the cost of manufacture, say 60 per cent; labor will be probably 25 per cent, and other expenses 15 per cent. On white shirtings, however, the raw cotton may not take more than 40 to 50 per cent, say 45 per cent; labor 40 per cent, and expenses 15 per cent. In the first case, where labor is, say, one-quarter of the total cost of manufacture, we compete; in the second case, where the labor item may be one-half of the total, we fall behind. Even though at a disadvantage as to prices paid for labor, this labor has gradually become more efficient, and with the rapid multiplication in labor-saving devices there is no sound reason why the American manufacturer should not be able to compete on finer goods.

The greatest single item of cotton piece goods imported into China to-day is American sheeting, and of this the great majority is the standard 2.85 and 3 yard sheetings, 48 by 48. Sheetings, of course, are always 36 inches wide and 40 yards long. The English can not deliver light-sized sheetings at a price to seriously compete with the American product. There is more reason to fear Japanese than English competition on this line because of the cheapness of their manufacturing costs and their lower freight rates. But the Japanese cloth,

though sold much cheaper, is of inferior quality and made of shorter-stapled cotton and can not equal the American brands. There have been some complaints recently as to the quality of some American brands deteriorating, but if our manufacturers are careful as to maintaining the present standard they will continue to control the sheeting market.

STRENUOUS JAPANESE COMPETITION.

I have been through many Japanese cotton mills and found two or three mills that by the use of American cotton can turn out goods very little, if any, inferior to American, but if they used American cotton entirely they would have to raise the selling price. In most Japanese mills the help is not sufficiently skilled to make cloth that can compete as to quality. With 100 Northrop looms in America, run by four skillful men, the cloth month by month is of exactly similar quality, the "cover," tension, etc., being maintained uniform. With 40 girls on 100 plain looms in Japan it is impossible that they can be as highly trained or attain as uniform results. The point at which Japanese competition will be keenest is in Manchuria, and they are making great efforts to control this trade. In some instances they are trying to establish certain brands by making all these goods come full measure or a little over. On 3-yard sheetings, for instance, some mills are making a practice of shipping 40-yard pieces weighing 13½ pounds or over instead of 13⅓ pounds. The Chinese dealer notices such things and wants full measure, and if more than that is given he considers it a bargain and will buy even though the cloth is not quite as high quality. On the other hand, wherever our standard 3-yard sheeting is 48 by 48 while the Japanese is only 44 by 44, a gain of 4 picks in weaving.

Most of the sheetings are dyed by hand by the Chinese from home-raised indigo, and most of the Chinese masses are clothed in American 2.85 and 3 yard sheetings. Even in winter the Chinese prefer garments made of double breadths of sheetings padded with cotton to any woolen garment.

There is also sold a large quantity of 3.25 sheeting 48 by 40, 48 by 48, 48 by 44, 44 by 44, 44 by 40, 48 by 42, and other constructions, and 3.50 and 4 yard sheeting 48 by 52, 56 by 60, etc. There is some business done in the finer counts, such as 64 by 68, 64 by 64, etc., but as a rule the Chinaman prefers the standard coarse counts, because the cloth, not being so closely woven, takes the dye more readily, and, being of coarser yarn, wears better.

LIGHT GOODS FOR SOUTH CHINA.

On lighter sheetings, such as 4.50-yard 48 by 52 and 48 by 44, 4.70-yard 48 by 52 and 48 by 50, 5-yard 48 by 52 and 48 by 48, 5.15-yard 56 by 48 and 64 by 64, 5.35-yard 48 by 48 and 64 by 60, and 5.50-yard 44 by 44 and 64 by 56, and other constructions, there is a fair demand, even as far north as Tientsin and Newchwang. The best market for sheetings lighter than 3.50 or 4 yards, however, is in southern China, and this trade is controlled by the English. These lighter-weight sheetings are not as extensively used as the 3.85 to 4 yard, but this

field should be more extensively cultivated by our manufacturers, as there is reported an increasing demand in this direction. In times of depression like the present the tendency is toward the lighter weights.

Sheetings are supposed to be 36 inches wide and in 40-yard lengths. Wider goods, say 38, 38½, and 39 inches, are usually classed as shirtings, though in America often known as gray goods, 38½-inch, standards, etc., plain wides, wide prints, etc. A different classification obtains in the reports of the chamber of commerce at Shanghai and in the market reports there. As a matter of convenience, while sheetings 3.50 and heavier are classed as sheetings, 4-yard and lighter are classed as shirtings, irrespective of the width being 36 or 38½ inches. As a good many of our manufacturers doubtless receive the market circulars on the yarn and cotton piece-goods markets issued weekly by Ilbert & Co. and by Noel, Murray & Co., also the semiannual list of stocks on hand published by the Shanghai Chamber of Commerce, this is noted, as the stocks of sheetings on hand, 36-inch goods, are really more, and the stocks of shirtings, 38½-inch goods, really less than shown by reports, according to this classification.

NEW ENGLAND SHOULD SECURE SHIRTING TRADE.

Next to sheetings, gray shirtings is the largest item in the cloths imported into China. Here we find the conditions reversed, and whereas on sheetings America controls the trade, importing in 1905 7,943,860 out of a total of 9,428,880 pieces, England only supplying 479,350 pieces, on gray shirtings for the same year England supplied 6,119,503 out of a total of 6,827,969 pieces, America only supplying 449,365 pieces. This is a striking contrast, and for practical purposes it may be said that America supplies all the gray sheetings used in China and that England supplies all the gray shirtings used. The reason of this division of trade is not clear, except that so far America has found sheetings more profitable.

The gray shirtings sold in China are the regular standard 38½-inch plain wides, such as are made by many American mills, especially in Massachusetts. There is no insurmountable reason why these mills should not build up as large a foreign trade on these goods as the southern mills have on sheetings. The amount consumed in China is almost as large; in fact, taking gray and white shirtings together, China uses more shirtings than she does sheetings. Shirtings are of finer count as a rule than the sheetings and made of finer yarn and more finished, and this brings in the item of labor, and so far on goods involving much labor in proportion to raw material America has not been able to compete with England. This is changing somewhat, and gray shirtings is one of the first goods that should be considered.

Besides the regular 38½-inch, 64 by 64 plain wide, the usual widths of shirting are 38 and 39 inches and the lengths are from 37½ to 39 yards. The goods are sold by the number of pounds to the piece, and run from 6 to 12 pounds, or 6.5 to 3.25 yards per pound. The constructions run from 56 by 48 to 72 square. The largest bulk of these goods, at least a third of the total, is about 4-yard goods 64 by 64 and 64 by 60. On account of their finish some 36-inch 40-yard goods are classed as shirtings. These are chiefly 3.25-yard goods, English and Continental.

Aside from other considerations, one reason that the English control the shirting market is that the trade in this line is at points where as yet American goods are little known, and where there has been little effort made to gain the trade by America as compared with the efforts at other points, such as Manchuria, etc. Of the total of 9,428,880 yards of gray sheeting imported in 1905 one-fourth went to each of the three ports Newchwang, Tientsin, and Shanghai—2,323,336, 2,544,604, and 2,566,999 pieces, respectively—and the remaining one-quarter was scattered. Of the 6,827,969 pieces English gray shirting one-third went to Shanghai, or 2,136,517 pieces, less than one-fourth, or 1,562,890 pieces, went north, and the remaining 3,128,554 pieces were distributed along the Yangtze River and along the southern coast. Considering Shanghai and the Yangtze River as being in the south, it is shown that of the 9,428,880 pieces gray sheetings, 6,705,654 pieces, or 68.5 per cent, went north, and of the 6,827,969 pieces gray shirting only 1,562,890 pieces, or 23.1 per cent, went north.

Gray shirtings offer the largest and easiest field for the textile manufacturers of the United States, by whom it should be controlled. As they are, however, sold mostly in British trade "spheres of influence," American merchants will have to work south.

THE WHITE SHIRTING PROBLEM.

On white shirtings American mills do not compete in China, and most attempts along this line have met with failure. The field of white shirtings is a broad one, and includes a wide range from goods 44 by 44, or even coarser—practically rags, skillfully filled with starch and China clay until they look presentable—to closely woven 72 reed goods of very fine yarn and of fine finish. To give constructions of these goods is of little value, as the main points are even yarns, good bleaching, and fine finishes.

American mills are making progress along these lines, and should be able to do a portion of the trade here. The main reasons assigned for the failures of most of the white goods introduced are, first, that they were not bleached to as perfect a degree of whiteness as the English; that the bleach did not hold, and the goods had a tendency to yellow (possibly due to soap being used in the bleaching operations); that the yarns used were too coarse, and that the finish was considerably below that of the English. Some of the English white shirtings, such as the so-called White Irishes, have a heavy glaze finish that so far is produced successfully by few American mills. More can be learned as to the field on white shirtings by studying the samples at the Bureau of Manufactures than in any other way.

A great many of the white shirtings, practically all the finer ones, and also a good many of the gray shirtings, are made with head end filling stripes. These are not colored borders, as in the case of Mexicans and T cloths, but the raised stripe effect is usually produced by using a coarser filling for a few picks; also tinsel is often used. For instance, in one white shirting, where the regular filling is No. 32s, the head end is made by using 7 repeats of 3 picks No. 16s, 2 picks No. 32s, 2 picks tinsel about same fineness as 32s, then 2 picks 32s. The regular weave is used for $1\frac{3}{4}$ inches, and then another stripe formed with 8 picks No. 16s.

This might seem to call for a box loom, but it is easily produced by hand, and with a good weaver would cause very little loss of time. The main trouble about it is that each dealer wants his own particular stripe with so many tinsel picks, varying width, etc., and this in necessarily limited quantities. This brings in the matter of catering to small special orders, which our manufacturers accustomed to rushing out goods in bulk have so far refused to do. The market on these shirtings is a large one, larger even than sheetings, and is well worth an effort. By making usual headings in bulk, and establishing the same heading with dealers at different points, this trouble could be partly overcome. While necessarily causing some loss of production, most of these headings are very simple, and would be easily and accurately made by good weavers. If other matters of smooth yarn, good bleaching, correct sizing and finish are attended to, the headings present small difficulty.

PACKING.

BAD TREATMENT BY WAREHOUSEMEN CONTINUES.

At Chefoo Mr. Clark found that cotton piece goods are still generally stored on the open wharf, protected at night and in bad weather only by mattings. Some bad practices in handling bales of American goods in China are shown to be largely responsible for the bad condition in which they arrive at their ultimate destination. He writes:

There were, among other goods at the Chefoo wharf, two or three piles of American sheetings and drills and one lot of Japanese sheetings. The Japanese bales were in about as good condition, with exception of a few end pieces torn, as when they left the factory, which is only natural, as they were probably, as I have seen at Osaka, loaded direct from mill to boat and only handled once at unloading.

One pile of goods stamped "Made in U. S. A.," were in fair condition. The bales had one to three ties off, the end pieces on about a third of them were torn off or hanging loose, and the burlap on several of them was split down the side, due to too light burlap being used. The cloth itself was not damaged, however, and the condition of the bales only such as might be expected after the many handlings they had received and the fact that they are not packed as elaborately and carefully as English bales.

The other pile, however, while being an exact confirmation of views published by the Consular and Trade Reports and similar in appearance to lots I have since seen at Tientsin, had suffered much more damage than would normally occur to an American shipment. While American mills do not pack as stoutly as they might, I do not think any cotton mill would pack so carelessly that the goods would arrive here in the condition shown. Of the entire lot of 30 or 40 bales, scarcely one was in decent shape. A few had four ties, but the majority had one or two, just enough to hold the bale together. A few had ropes, and on two or three of these bales the marks of ties showed that ties had been removed and a rope or two substituted. Some of

the bales were without fastenings of any kind beyond the yarn strands holding together the burlap. Six or seven bales out of the lot were falling open and the cloth exposed to the dust raised by the passing lines of coolies. Some pieces were mud stained and others covered with dust.

The condition in which these bales arrived at Chefoo was not due to the American manufacturer, but to the Shanghai merchants, some of the foreign firms allowing their warehousemen to remove all the ties, except the one or two necessary to keep the cloth from falling apart, as part of his perquisites. This cloth is sold to the Chinese dealer in this shape and then shipped north by him. I went into one warehouse and inquired as to the reason of the piles of ties stacked up at the door and the bales shown having only one to three ties on them, and found this to be the solution. This was corroborated by another merchant. Another merchant said that their custom was to deliver the bales just as received to the Chinese dealer, when their responsibility ceased, but that very often the Chinese dealer at Shanghai removed most of the ties before reselling.

TIES ARE REMOVED IN SHANGHAI.

That this practice is not entirely universal is shown by the fact that some bales go north all right, but that the custom is widespread is proved by what I saw and heard at Shanghai, and the fact that the large amount of goods going north with few or no ties could hardly have been stripped so extensively by the ordinary rough usage to which they are exposed. I personally watched a shipment of American sheetings unloaded from ocean liner to lighter off the bar at Shanghai, and saw the bales swung up on deck by tackle and donkey engine from the hold of the liner and then rolled down a gang plank and dropped on top of each other 10 to 20 feet down into the hold of the lighter. I saw two ties stripped off by catching on the edge of the gang plank, and some of the burlap on the bales was split down the sides on a few by the impact, but the shipment as a whole was in first-class condition, and I believe that most shipments of sheetings and drills arrive at Shanghai in at least fair condition—nothing like the condition of the shipments I saw at Chefoo and Tientsin. The merchants or dealers at Shanghai put them in this condition, but the American manufacturer usually gets the blame.

As most of the sheetings and drills are afterwards dyed by the Chinese, some dust or stains on them are not of vital importance, except that as naturally the appearance of the goods is quite a factor in their sale this undoubtedly affects the market price. In several instances I heard of at Tientsin claims had to be allowed on this account on resales. This practice of removing the ties from the bales at Shanghai, whether by the merchant's warehouse employees or by the native dealer before reshipment, should be stopped, as it tends to affect the price of American goods adversely.

OBJECTIONABLE NARROW TIES USED.

While this practice at Shanghai accounts for some of the complaints heard, it is a fact that our manufacturers are not as careful as the English in this regard. Most American mills use narrow ties,

five-eighths to seven-eighths inch wide. One of the best-packed American lots I saw had eleven five-eighths inch galvanized-iron straps. Most of the ties are wider than this, however, and only four o six are used. In many instances the same ties are used by the mills as were removed from the cotton bales. The greatest complaint I heard at Shanghai was in regard to the narrow ties cutting into the bales, in many instances to a depth of five or six folds. The English use broader ties, at least 1¼ inches wide, and insert a wooden strip, say one-half inch by 2 inches, at each corner between the paper and the outer burlap before baling. As these strips cost little and would save much complaint, our manufacturers should use them. Wider ties are also preferable, but as the mills can use the narrower ties on hand at less cost there is not much prospect of a change.

Even on such goods as sheetings, drills, and gray shirtings the English use more wrappings. They use for most sheetings, for instance, a cheap brown wrapping paper, then the ordinary colored glazed waterproof paper, then a waterproof paper-lined cotton, and then gunny sacking. Similar goods from America have the colored waterproof paper and burlap.

If the American goods were simply consumed at Shanghai the present American packing of drills and sheetings might be adequate if the wooden battens at the edges are used; but as the bales are reshipped and sometimes—as at Chefoo and Tientsin—lie out on the wharves for days and sometimes weeks and then are carted several hundred miles inland, it would be much better if a waterproof paper-lined burlap or a waterproof cotton were used between the paper and the outer burlap covering. Such waterproof cotton or burlap in America costs 3 to 6 cents a yard, say 10 cents a bale. On the higher priced sheetings, at least, this should be used.

TIN-LINED REENFORCED CASES.

Such things as white shirtings, prints, etc., of course should always be shipped in tin-lined cases. A merchant at Tientsin reports an instance of some American prints that were shipped here in the spring and on account of the depression had to be stored. He finally sold these recently. The goods had been shipped in an ordinary wooden box, but were wrapped in two thicknesses of paper and a waterproof cloth. They were found, on opening the cases, to be stuck together and the colors blurred, the coverings not being able to prevent the moisture from penetrating. Only tin-lined cases are able to protect their contents in such cases.

The English use three-fourths to seven-eighths inch plank for their cases, and this is reenforced by two battens on each side and by ties nailed around each end. Frequently three short iron strips are nailed diagonally across each other at the corners. The complaints as to the American cases, that they are too light, one-half to three-eighths inch plank being used, are well founded, and the cases are in much worse condition than the English on arrival. At Shanghai I saw three cases of English velvets that had been shipped in large cases, about 3 by 4 by 8 feet, and the plank used was half-inch pine. As a consequence the wood had been smashed and a liquid substance had leaked through from other cargo, and the goods in all three cases were damaged and a heavy claim had been made by the merchant. As a

rule, however, the English use much thicker wood, and their cased goods arrive in much better condition.

At Tientsin all the merchants with whom I talked preferred ties to ropes in baling. One reason they gave was that the coolies handling the goods had a habit of cutting the ropes and keeping them, and frequently in their hurry to do this undetected they knifed into the cloth also. Some of the Tientsin merchants' employees practice the removal of ties as at Shanghai. Two of the largest firms, however, told me that they had lately absolutely prohibited this practice among their employees, as it had proved to be the basis of several claims made for damaged goods.

COMPLAINTS BY MERCHANTS.

SHORTCOMINGS OF AMERICAN BUSINESS DEALINGS EXPLAINED.

Mr. Clark found dissatisfaction among merchants at Shanghai as to American mills canceling contracts and delaying shipments; also in regard to the deterioration allowed in some of the "chops" at times, even the best known. This is a matter which should be given consideration by American manufacturers. Mr. Clark continues:

As one merchant expressed it, all that the American manufacturer needs to control this market is "honest goods and square dealing," and the reputation enjoyed by America in both should be maintained. It should be understood that a cancellation in China is usually a much more serious matter than a cancellation in America, owing to the different methods of business. In the United States if a mill finds itself short of help, or for any reason unable to fill a contract and has to cancel, the customer very often, except for the trouble of having to order elsewhere, is none the worse. He only loses, probably, if the price of goods has gone up.

In China, on the other hand, if an order is canceled and goods are quoted in America at same figure as before, the importer may yet lose heavily. This is due to the fact that in America a merchant buys or sells goods only, but in China a merchant must also buy or sell money every time he sells or buys goods.

A CASE IN POINT.

As a concrete illustration I will note an actual case of recent date at Shanghai. A Chinese dealer in June ordered 1,000 bales of a well-known American sheeting for September shipment. Business was dull in nearly all lines, but on this particular sheeting there was some demand. The price was fixed and contract closed. The Chinese dealer is paid by his customers in taels, but must pay the merchant in gold, and the value of the tael fluctuates, being sometimes equal to 67 cents, and perhaps twelve months later it will be 77 cents. To facilitate business the banks will quote months ahead, and if the tael is worth 75 cents in September and silver is rising they may offer to sell you 76 cents for the tael in January, etc. Money is therefore sold and bought in same way as futures in other things are sold or bought. To avoid speculation the only way is to buy exchange for the month

in which the cloth is to arrive or in which payment is to be made. In this case the merchant, acting for the dealer, bought September exchange. In August the merchant was notified that the mill was short of help and could not fill the contract.

In the meantime exchange had rapidly risen, which fact would be in the dealer's favor if he had speculated, but as it was he was bound by his exchange agreement, and the gold exchange he had bought he had to resell at a loss. The dealer, knowing what cloth was to cost him laid down and all charges paid, had, on buying the cloth of the merchant, succeeded in contracting with smaller dealers for its resale, shipments to be in September. With a thousand bales bought and a thousand bales sold, the dealer's margin was fixed, and he would have made in September a nice profit. When a cancellation is made in this way the foreign merchant is responsible to the Chinese dealer for the goods, and if the dealer shows loss sustained by reason of such failure the merchant has to pay part of this loss or else lose his customer. In this case, with difference in exchange, which he bore, and incidental losses, such as telegrams, etc., the merchant claimed to have actually lost 1,000 taels, besides his expected commission, etc., and claimed damages from the mill, or rather the commission house, for this amount. Besides his money loss, he "lost face," as the Chinese say, because of his inability to keep his contract with the Chinese dealer. The dealer also "lost face" with the outside dealers with whom he had contracted the resales.

CHINESE OBSERVE CONTRACTS CLOSELY.

While not going into the merits of this particular case—in fact, with the scarcity of labor in the South as acute as it has been for a year, it is very probable that the cancellation was entirely unavoidable—the fact should be noted that cancellations out here entail serious consequences. A very few cancellations like this which makes the merchant fail to keep his contract with his Chinese customer, who on his side adheres to his contracts scrupulously, will hurt a merchant's trade very much. The mills should not contract for China delivery unless sure of shipment. They should not only be convinced of the importance of keeping the contract and shipping, but of keeping it to the letter and shipping exactly on time.

Where there is one complaint as to cancellation there are a dozen as to shipments not coming forward on date or in month agreed. If a merchant has bought September exchange, it is not satisfactory to sell this and buy October exchange. There is always a difference, and in some times of rapid fluctuations this difference has been as much as 4 per cent between February and March exchange. Shipments a month or two late also cause the dealer much trouble with his resales, and in many cases the small dealers refuse to take October delivery at same price they had agreed on for September delivery, especially when the value of the tael is appreciating, and the dealer has to accept a lower price. There are bad effects in other ways. In some cases the goods have to be shipped to the outside dealer by a certain date or he can not get them for months. Take reshipments to Newchwang, for instance: If the goods were received at Shanghai in September, they might be received at Newchwang in October, say, and re-

shipped thence to some distributing point, such as Kwanchengtze, before very cold weather sets in. If the shipments are delayed a month, they may not get to Shanghai in time to be reshipped north before the harbor at Newchwang becomes icebound, and the goods may have to be stored at Shanghai for four months or more at heavy charges.

DEFECTS ARE QUICKLY DETECTED.

Quite a little complaint was made at Shanghai, also some at Tientsin, as to well-known brands being allowed to deteriorate. While in times of depression like this such complaints are more likely to occur than usual, there seems to be some grounds for this. The main defects alleged are low-grade cotton being substituted for the higher grades previously used, widths falling too narrow and varying in width, also the weights varying, and in some instances the construction varying by a couple of picks or so. Also that some bales were occasionally carelessly packed and turned up one piece short. One or two complaints were that the appearance of the goods was not the same, though the ends each way had not been changed. This was probably due to a different " cover " being put on the cloth. As manufacturers know, the appearance of a cloth to a certain extent can be altered by raising or lowering the whip roll on the loom, which makes the top shed ends slacker or tighter and so puts more or less " cover " on the goods. If the goods are bare looking, they are said to lack " cover." There is a certain position of the whip roll for each style of loom and for each kind of cloth that will give the best appearing cloth with least strain on the yarn, and hence maximum production. These and other details are matters that affect the trade on two pieces of cloth of similar weight, weave, etc., so that one commands a much higher price than the other. In the older mills the help are carefully trained in the varying of the tension desired, etc., and become so adept that exactly the same cloth, with same cover and unvarying widths is turned out year after year. At the present time, with the scarcity of help prevailing among most American mills, especially in the South, where the majority of cloth exports are made, green help and incompetent loom fixers occasionally must be extensively used, which probably accounts for most of the complaints that are based on actual fact.

CHINESE BUYERS EXAMINE EVERY PIECE.

In ordinary times the buyer accepts the goods on the " chop " or examines, say, one bale in a lot, but at present he often wants to examine every piece, and of course, if any valid reasons for rejection or for reduction in price are found, they are not neglected. In the present dull condition of trade manufacturers should be unusually careful that there are no grounds afforded for complaint. Of late the Chinese dealers have wanted to see whole pieces before buying goods, instead of buying from head ends as heretofore.

The goods of certain American mills are widely known in China, and from Newchwang to Canton the Chinese dealer will buy the "A," the " B," or the " C " brands of these mills with a perfect certainty of getting value for his money in light-sized, well-woven goods. If a Chinaman tries a chop and the quality in some shipment is inferior,

the Chinaman says in his expressive, if not altogether chaste, English that the "chop stinks," and refuses to buy more of it. The great trade built up on certain American goods is due to the unvarying quality of these makes, and if the goods were made cheaper, by using lower-grade cotton or by sizing heavier, the keen-witted Chinese dealer would soon discover it and the value of the chop would depreciate accordingly.

Some firms reported that the American mills still stamp their pieces too hurriedly, and that this results in the brands on many pieces being too faint. The English are very particular as to this, and each separate piece is clearly and firmly stamped. As a large portion of the goods are finally sold to retailers, to find even a few pieces in a bale with the chops very faint or blurred sometimes causes trouble. The more nearly uniform all details of a "chop" are kept the better.

BANKING.

MONEY CONDITIONS AFFECTING COMMERCIAL TRANSACTIONS.

In the following report, Mr. Clark reviews financial affairs in North China, the various kinds of currency by which trade is conducted, and briefly discusses the future prospects for increased purchasing power of the people:

When both American and Russian banks in the Far East confess that the men of their own nations are not as yet sufficiently versed in the intricacies of the many systems employed to run their own banks, but have to engage Englishmen who are brought up on exchange tables, it is useless for an outsider to try to explain eastern finances. I submit therefore simply a few practical facts that bear directly on the sale of American goods.

In the first place autocratically governed China is in some respects the most democratic country in the world and there is no centralization, no unity, and no uniformity. Each province, even each little town is a law unto itself and uses its own language, weights, measures, etc. As regards money the confusion is the same and each province has its currency, and the money of one province has an entirely different value from that of another. In the United States a mill is a financial fraction for which there is no coin equivalent. In China the tael is a financial unit for which there is no coin equivalent. There are several other financial values for which there are no coin, and only in copper are currency and coinage synonymous terms.

BASIS OF WEIGHTS AND MEASURES—MEXICAN DOLLARS.

The word tael is used both as a measure of weight and as a measure of value. As a weight measure the tael corresponds to the American ounce in that it is one-sixteenth part of a Chinese pound or cattie. A cattie, however, is usually 1⅓ pounds, so a Chinese ounce or tael is different from an English ounce. As a tael of currency the weight ranges from 540 to 583 grains. The tael of currency is decimally divided down to the sixteenth place of decimals, each with its own

name, but usually only three places of decimals are used, and 10 cash=1 candarin, 10 candarin=1 mace, 10 mace=1 tael; thus Ts.1.256 can be read 1 tael, 2 mace, 5 candarins, and 6 cash.

Each province in China, also each city and many smaller towns, have a different tael of value, as the tael is supposed to be an ounce (Chinese) of silver, but there is no uniformity as to how many grains constitute this ounce, and the fineness of the silver also varies at each point.

The money chiefly used at the foreign ports of China is the Mexican silver dollar. There is an immense amount of these coins in circulation. The notes issued by foreign banks in China, such as the International Banking Corporation, the Hongkong and Shanghai Bank, etc., for $5, $10, etc., all read "payable in local currency," that is, Mexican dollars. It seems strange that China should use money from Mexico when she has money of her own, but the value of the money in China varies so that the foreigners imported money for their own use of which they know the value, and so this became the currency of the ports.

At one time there was an attempt to substitute an American "trade" dollar, but the coin contained 420 grains instead of the 417.8 grains of the Mexican. This was supposed to gain the lead as currency on account of its superior weight and hence value, but the actual result was that, silver being at a premium, the Chinese melted these down as soon as received, so this experiment was a failure. Similar experiments with British and French trade dollars have also been failures.

Each province of China now issues silver dollars, but they are not interchangeable, and hence only local. In fact, each province charges a discount on money from any other province, which is the reason the interchangeable Mexican dollar is so popular. The Mexican dollar and the other coins are widely counterfeited, so that all money received in China has to be examined carefully. Compradors and native merchants frequently put their own chop or stamp on these dollars as a guarantee before passing them on.

TROUBLE WITH MONEY IN MANCHURIA.

Money conditions in Manchuria are bad, due in great part to the fact that there is no one stable currency. At Kwanchengtze, for instance, there is the Kirin tael, the Kwanchengtze tael, the Kirin Province small coins, other provinces' small coins, the copper cash, the Mexican dollar, the Japanese gold yen, the Japanese war notes, the Russian ruble, etc., all with fluctuating values, not to mention the numerous counterfeits.

If the Japanese war notes had been backed by a gold reserve, as with other Japanese money, they would have furnished the best solution of the question; in fact, in the hands of the people, they were very popular until it was found that the Japanese would not give face value for them either in gold or silver. They have therefore been at a discount of 3 to 24 (or over) per cent of their face value and have been the subject of much speculation and quite a considerable loss to the people.

The Russian ruble notes which were largely circulated were also the basis of much speculation, but there are no figures available as to the amount of these in circulation. They are not current at present.

south of Kwanchengtze, and it is interesting to note that at this point, within the Russian lines, the Japanese war note has a higher value than the Russian ruble. A Japanese war note, however, which is worth 56.31 cents gold at Newchwang is only worth 51.02 cents gold at Kwanchengtze.

In regard to foreign banks in Manchuria there are only two (though some Shanghai banks have merchants at Newchwang acting as agents), the Russo-China Bank and the Yokohoma Specie Bank, both of which are really Government banks and have certain Government functions.

The Chinese Government Bank at Mukden is trying to replace the war notes of the Japanese by notes of their own issue. Seeing the popularity attained by the convenient small notes of the Japanese they are now issuing notes for small denominations based thereon. These notes are from 10 cents up.

CHINESE BANK AND BUSINESS DISASTERS.

The great majority of the business in Manchuria passes through the hands of the native banks. These banks as a rule do not lend on stored goods nor very much on any securities, but keep their money in circulation in handling active trade. They are well organized and usually stand by each other, so that ordinarily failures are rare. A number suffered severely on account of the war and some of them speculated in war money with disastrous results.

According to a foreign bank at Newchwang, there are now only 17 Chinese banks at Newchwang regarded as solvent, and of these none are in a very strong position, when there were 50 to 60 two years or less ago. Failures in 1906 up to November have aggregated about 1,700,000 taels at this one city. Shanghai bankers have withdrawn their usual facilities on account of the financial straits here, and this lack of banking facilities, together with the blockade of goods, militate against any holding of prices or early resumption of normal business.

GENERAL PURCHASING POWER.

There has been considerable discussion as to what has become of the millions left by the Russian and Japanese armies in the country, and if the people are, as frequently stated, in a more prosperous condition and have more money why this does not come out and relieve the present dullness by heavy buying of foreign goods. My impression, obtained from the Chinese direct, is that the northern section is much better off than the southern, and that while the people as a whole are better off, the amount of this increased prosperity that is in actual cash available for foreign purchases has been somewhat exaggerated.

The Russians seem to have been freer spenders than the Japanese, and paid higher prices for horses and for cooly and cart hire. The fact is sometimes overlooked that a very large quantity of money so earned went out of the country in 1905 for foreign goods. Most of the Chinese contractors, etc., were not Manchurians, but were nearly all from Shantung and Pechili provinces, and the money made by them went south and out of this country. While a great many people made money, others lost; and there was great destruction of property. As one man, himself a sufferer from the war, stated:

"Our farmers took their carts and went out to look for money, and returned to find the armies had passed in their absence and their roofs

were gone, so in the long run they lost. Such men returning with $200 or $300 made hauling for the troops and not knowing when another army would be along buried this money and fled to the border country. Some have not yet returned, but those that have are spending what they saved in putting roofs on their houses and in putting in window sash and in restocking their farms. They are spending as little on food and apparel as possible and making their old clothes last for another season."

At Mukden one reason for the present lack of buying was given by several merchants as dating as far back as the Boxer troubles, when the people lost a lot of property and the money made during the war just replaced what they lost.

One reason for less money in the south than in the north is that not only did the Japanese know better the usual prices for cooly hire, etc., and so pay less than the Russians, but that they brought their own coolies, and the money made by these coolies all went back to Japan, either direct or through the Japanese merchants that came with the army.

PURCHASING POWER IN NORTHERN MANCHURIA.

The northern section of the country made good money from the Russians and suffered much less from the effects of war ravages, but is not absorbing the great amount of cloth stocked up, so I inquired into this as fully as possible. On account of speculation on the part of merchants in Kirin Province, aided by the efforts of the Newchwang merchants, who last winter sent men here to offer special inducements to the merchants to buy and so relieve the congestion at Newchwang, much more cloth was pushed up into this province than could possibly be absorbed in any but a great boom year. In the spring the boom did not come and the people did not buy foreign goods in the quantity anticipated. A great deal of this money made by the people was for ponies sold to the Russians, and this money was spent in buying better teams from Mongolia. Others spent it in buying farms and wooded hills. A great many people went into the foothills on the border of Mongolia where they could purchase land for one-fourth what they would have to pay around Kwanchengtze or Kirin. Both Japanese and Russians destroyed many houses simply to use the rafters, etc., as fuel during the severe cold weather, and the Chinese had to spend considerable to patch up their houses and get them in shape again.

I would say, therefore, that of the money spent by the armies a great deal was and is now being used to repair damage done by the armies, a large amount went into Mongolia to replace ponies bought by the armies, a good deal went out of the country during the boom in the spring of 1905 for foreign goods, contractors sent a lot to Shantung Province, and Japanese coolies and merchants to Japan, and what is left is being spent for additional fields and timbered land, besides a certain amount, which I think has been somewhat exaggerated, that is being hoarded by the people. The farmers have had prosperous crops, but with them the money comes hard, and is not spent freely as with the coolies, who made money easily.

The money that has been put into field and timbered land, into houses and stock, will hardly get to the merchants before next fall at least, and with the large stocks on hand in the interior there can not be any

great boom in the spring of 1907. When the country has settled down more, the timber sold, and the new lands producing, transportation made quicker and cheaper, and the country better policed the trade will be larger than ever before, and 1908 should be a great trade year.

CHINESE TARIFF.

CUSTOMS RETURNS ARE CLEAR AND DISTINCT.

The Chinese tariff is a tariff for revenue only, and is therefore low. It is supposed on most things to average up about 5 per cent. At present the receipts of the custom-houses at the treaty ports are pledged to various foreign powers as security for loans, etc., and the receipts can not be used for any other purposes. At Newchwang, however, there have been no receipts so applied for the last six years, as the Russians controlled there until the war and since then the Japanese. The statistical department of the inspectorate-general of customs publishes at the end of each quarter the customs returns and reports from each port. The commissioner of customs at the end of each year gives a résumé of the returns and the general movements of trade during the past year at his port. These reports are interesting, and for convenience in ascertaining the opening for an article at a certain port as judged by past returns they are valuable to the manufacturer.

In the clear and practical way in which the returns of the Chinese maritime customs are given in detail they are models. For instance, a manufacturer interested in 32-inch T cloth can turn to the Chinese customs returns and find how much is imported into Shanghai or any other port, the number of pieces, the yards, and the value in haikwan taels, and not only how much is imported into each port but how much is reexported to other ports and how much is actually consumed at that port. Such returns are given in much clearer and more practical form in these reports than is usually found. On cotton piece goods the duty is mostly levied as so many haikwan taels a piece or per yard, and in only a few instances ad valorem. Though the duty is not paid by the manufacturer or the foreign merchant, but by the Chinese dealer, it is of importance as affecting the cost per yard to the dealer and hence his purchasing power. The tariff now in force at all Chinese treaty ports as to all cotton piece goods is therefore given in full as follows (1 haikwan tael = 83.4 cents on April 1, 1907):

Name of article.	Duty.
	Haikwan taels.
Cotton duck, not exceeding 36 inches wide.....per yard..	0.010
Cotton piece goods:	
Gray shirtings or sheetings, not exceeding 40 inches wide and not exceeding 40 yards long—	
(*a*) Weight 7 pounds and under.....per piece..	.050
(*b*) Weight over 7 pounds and not over 9 pounds.....do....	.080
(*c*) Weight over 9 pounds and not over 11 pounds.....do....	.110
(*d*) Weight over 11 pounds.....do....	.120
Imitation native cotton cloth (handmade) gray or bleached—	
(*a*) Not exceeding 20 inches wide and not exceeding 20 yards long, weight 5 pounds and under.....per piece..	.027
(*b*) Exceeding 20 inches wide.....ad valorem..	5 per cent.

Name of article.	Duty.
	Haikwan taels.
Cotton piece goods—Continued.	
White shirtings, white Irishes, white sheetings, white brocades, and white striped or spotted shirtings, not exceeding 37 inches wide and not exceeding 42 yards long, per piece	0.135
Drills, gray or white, not exceeding 31 inches wide and not exceeding 40 yards long—	
(*a*) Weight 12¼ pounds and under....per piece..	.100
(*b*) Weight over 12¼ pounds....do....	.125
Jeans, gray or white—	
(*a*) Not exceeding 31 inches wide and not exceeding 30 yards long....do....	.090
(*b*) Not exceeding 31 inches wide and not exceeding 40 yards long....do....	.120
T cloths, gray or white—	
(*a*) Not exceeding 34 inches wide and not exceeding 24 yards long....do....	.070
(*b*) Not exceeding 34 inches wide and exceeding 24 yards but not exceeding 40 yards long....per piece..	.135
(*c*) Exceeding 34 inches but not exceeding 37 inches wide and not exceeding 24 yards long....per piece..	.080
Crimp cloth and crape, plain—	
(*a*) Not exceeding 30 inches wide and not exceeding 6 yards long....per piece..	.027
(*b*) Not exceeding 30 inches wide and exceeding 6 yards but not exceeding 10 yards long....per piece..	.035
(*c*) Not exceeding 30 inches wide but exceeding 10 yards long....per yard..	.003½
White muslins, white lawns, and white cambrics, not exceeding 46 inches wide and not exceeding 12 yards long....per piece..	.032
Mosquito netting, white or colored, not exceeding 90 inches wide....per yard..	.010
Lenos and balzarines, white, dyed, or printed, not exceeding 31 inches wide and not exceeding 30 yards long....per piece..	.090
Leno brocades and balzarine brocades, dyed....ad valorem..	5 per cent.
Prints—	
(*a*) Printed cambrics, lawns, or muslins: not exceeding 46 inches wide and not exceeding 12 yards long....per piece..	.037
(*b*) Printed chintzes, printed crapes, printed drills, printed furnitures, printed shirtings, printed T cloths (including those goods known as blue and white printed T cloths), printed twills, but not including goods mentioned in (*e*) and (*h*)—	
1. Not exceeding 20 inches wide....ad valorem..	5 per cent.
2. Exceeding 20 inches but not exceeding 31 inches wide and not exceeding 30 yards long....per piece..	.080
(*c*) Printed crimp cloth—	
1. Not exceeding 30 inches wide and not exceeding 6 yards long...per piece..	.027
2. Not exceeding 30 inches wide and exceeding 6 yards but not exceeding 10 yards long....per piece..	.035
3. Not exceeding 30 inches wide but exceeding 10 yards long....per yard..	.003½
(*d*) Printed lenos and balzarines, not exceeding 31 inches wide and not exceeding 30 yards long....per piece..	.090
(*e*) Printed sheetings, not exceeding 36 inches wide and not exceeding 43 yards long....per piece..	.185
(*f*) Printed turkey reds, of all kinds, not exceeding 31 inches wide and not exceeding 25 yards long....per piece..	.100
(*g*) Printed sateens, printed satinets, printed reps, printed cotton lastings (including all cotton piece goods which are both dyed and printed, except those specified in (*f*) and (*h*), and including any special finish, such as mercerized finish, Schreiner finish, gassed finish, silk finish, or electric finish) not exceeding 32 inches wide and not exceeding 32 yards long; per piece	.250
(*h*) Duplex prints or reversible cretonnes (not including those goods known as blue and white printed T-cloths)....ad valorem..	5 per cent.
Dyed cottons—	
(*a*) Dyed plain cottons, i. e., without woven or embossed figures (including plain Italians, lastings, reps, and ribs, and all other dyed plain cottons not otherwise enumerated, and including any special finish, such as mercerized finish, Schreiner finish, gassed finish, silk finish, or electric finish), not exceeding 36 inches wide and not exceeding 33 yards long..per piece..	.240
(*b*) Dyed figured cottons, i. e., with woven or embossed figures (including figured Italians and lastings, figured reps, and figured ribs, and all other dyed figured cottons not otherwise enumerated, and including any special finish, such as mercerized finish, gassed finish, schreiner finish, silk finish, or electric finish); not exceeding 36 inches wide and not exceeding 33 yards long. per piece..	.150
(*c*) Dyed crimp cloth:	
1. Not exceeding 30 inches wide and not exceeding 6 yards long. ....do....	.027
2. Not exceeding 30 inches wide and exceeding 6 yards but not exceeding 10 yards long....per piece..	.035
3. Not exceeding 30 inches wide but exceeding 10 yards long....per yard..	.003½
(*d*) Dyed drills: not exceeding 31 inches wide and not exceeding 43 yards long....per piece..	.170
(*e*) Dyed lenos and balzarines: not exceeding 31 inches wide and not exceeding 30 yards long....per piece..	.090
(*f*) Dyed leno brocades....ad valorem..	5 per cent.
(*g*) Dyed muslins, lawns, and cambrics: not exceeding 46 inches wide and not exceeding 12 yards long....per piece..	0.037
(*h*) Dyed shirtings and sheetings: not exceeding 36 inches wide and not exceeding 43 yards long....per piece..	.150
(*i*) Hongkong-dyed shirtings: not exceeding 36 inches wide and not exceeding 20 yards long....per piece..	.100

Name of article.	Duty.
Cotton piece goods—Continued.	*Haikwan taels.*
Dyed cottons—Continued.	
(*j*) Dyed cotton cuts: not exceeding 36 inches wide and not exceeding 5¼ yards long.....per piece..	.022½
(N. B.—The pro-rata rule does not apply.)	
(*k*) Dyed T-cloths (including dyed alpacianos), dyed real and imitation turkey reds of all kinds: not exceeding 32 inches wide and not exceeding 25 yards long—	
1. Weight 3¼ pounds and under.....per piece..	.060
2. Weight over 3¼ pounds.....do....	.100
Flannelettes and cotton Spanish stripes:	
(*a*) Cotton flannel, canton flannel, swansdowns, flannelettes, and raised cotton cloths of all kinds, plain, dyed, or printed—	
1. Not exceeding 36 inches wide and not exceeding 15 yards long..per piece..	.065
2. Not exceeding 36 inches wide and exceeding 15 yards, but not exceeding 30 yards long.....per piece..	.130
(*b*) Dyed cotton Spanish stripes—	
1. Not exceeding 32 inches wide and not exceeding 20 yards long.....do....	.085
2. Exceeding 32 inches but not exceeding 64 inches wide and not exceeding 20 yards long.....per piece..	.170
(*c*) Flannelettes, etc., with woven stripes.....ad valorem..	5 per cent.
Colored woven cottons, i. e., dyed in the yarn, except crimp cloth.....do....	5 per cent.
Crimp cloth:	
(*a*) Not exceeding 30 inches wide and not exceeding 6 yards long ....per piece..	0.027
(*b*) Not exceeding 30 inches wide and exceeding 6 yards, but not exceeding 10 yards long.....per piece..	.085
(*c*) Not exceeding 30 inches wide but exceeding 10 yards long.....per yard..	.008½
Velvets and velveteens, velvet cords, and fustians:	
(*a*) Velvets and velveteens, plain—	
1. Not exceeding 18 inches wide .....do....	.006
2. Exceeding 18 inches but not exceeding 22 inches wide.....do....	.007
3. Exceeding 22 inches but not exceeding 26 inches wide.....do....	.008
(*b*) Velvets and velveteens, printed or embossed, not exceeding 30 inches wide, per yard.....	.015
(*c*) Dyed velvet cords, dyed velveteen cords, dyed corduroys, dyed fustians of any description, not exceeding 30 inches wide.....per yard..	.015
(*d*) Dyed moleskins .....do....	.015
(*e*) Undyed moleskins.....ad valorem..	5 per cent.
Blankets, cotton, plain, printed or jacquard.....per piece..	.090
Handkerchiefs, cotton—	
(*a*) Plain, dyed or printed, not embroidered, hemstitched, or initialed, not exceeding 1 yard square.....per dozen..	.020
(*b*) All other handkerchiefs, ad valorem .....ad valorem..	5 per cent.
Singlets or drawers, cotton .....per dozen..	.125
Socks, cotton (including lisle thread)—	
First quality (i. e., valued at 1 tael or over per dozen pairs).....per dozen pairs..	.075
Second quality (i. e., valued at less than 1 tael per dozen pairs).....do....	.032
Towels, cotton—	
(*a*) Honeycomb or huckaback, plain or printed (dimensions, exclusive of fringe)—	
(1) Not exceeding 18 inches wide and not exceeding 40 inches long.per dozen..	.020
(2) Exceeding 18 inches wide and not exceeding 50 inches long.....do....	.030
(*b*) All other towels .....ad valorem..	5 per cent.
Cottons unclassed .....do....	5 per cent.
Lace, openwork or insertion work of cotton, machine made, per 12 dozen yards—	
(*a*) Not exceeding 1 inch wide, outside measurement.....	.050
(*b*) Exceeding 1 inch, but not exceeding 2 inches wide, outside measurement....	.100
(*c*) Exceeding 2 inches, but not exceeding 3 inches wide, outside measurement..	.166
(*d*) Exceeding 3 inches wide, outside measurement.....	.216
Lace openwork or insertion work of cotton, hand made.....per catty (1⅓ pounds)..	2.400
Trimmings—	
Cotton, pure or mixed with other materials but not silk.....ad valorem..	5 per cent.
Cotton, mixed with silk and imitation gold or silver thread .....do....	5 per cent.
Cotton, raw.....per picul (133⅓ pounds)..	.600
Cotton thread—	
Ball thread, dyed or undyed..... .....per picul..	3.000
On spools—	
50 yards .....per gross..	.040
100 yards.....do....	.080
200 yards.....do....	.160
Cotton yarn—	
Gray or bleached.....per picul..	.950
Dyed .....ad valorem..	5 per cent.
Gassed.....do....	5 per cent.
Mercerized .....do....	5 per cent.
Wooloa or berlinette.....per picul..	8.500

RULES AND REGULATIONS.

RULE I.

Imports unenumerated in this tariff will pay duty at the rate of 5 per cent ad valorem; and the value upon which duty is to be calculated shall be the market value of the goods in local currency. This market value when converted into haikwan taels shall be considered to be 12 per cent higher than the amount upon which duty is to be calculated.

If the goods have been sold before presentation to the customs of the application to pay duty, the gross amount of the bona fide contract will be accepted as evidence of the market value. Should the goods have been sold on c. f. i. terms, that is to say, without inclusion in the price of duty and other charges, such c. f. i. price shall be taken as the value for duty-paying purposes without the deduction mentioned in the preceding paragraph. If the goods have not been sold before presentation to the customs of the application to pay duty, and should a dispute arise between customs and importer regarding the value or classification of goods, the case will be referred to a board of arbitration composed of an official of the customs, a merchant selected by the consul of the importer, and a merchant, differing in nationality from the importer, selected by the senior consul.

Questions regarding procedure, etc., which may arise during the sittings of the board shall be decided by the majority. The final finding of the majority of the board, which must be announced within fifteen days of the reference (not including holidays), will be binding upon both parties. Each of the two merchants on the board will be entitled to a fee of 10 haikwan taels. Should the board sustain the customs valuation, or, in the event of not sustaining that valuation, should it decide that the goods have been undervalued by the importer to the extent of not less than 7½ per cent, the importer will pay the fees; if otherwise, the fees will be paid by the customs. Should the board decide that the correct value of the goods is 20 per cent (or more) higher than that upon which the importer originally claimed to pay duty, the customs authorities may retain possession of the goods until full duty has been paid, and may levy an additional duty equal to four times the duty sought to be evaded. In all cases invoices, when available, must be produced if required by the customs.

The foregoing is taken from the revised import tariff of October 31, 1902, and republished in 1906 by order of the inspector-general of the Chinese imperial maritime customs for the use of the customs in applying the treaty tariff.

JAPAN.

THE COTTON INDUSTRY.

THE MARKET FOR TEXTILES AND MACHINERY.

The results of investigations made by Special Agent Clark in Japan were given in a number of preliminary reports, published in the Daily Consular and Trade Reports. From those publications the following are reproduced:

There is undoubtedly a good market for American-made goods in Japan. It is not a large market at present, but if the nearly $8,000,000 in cloth shipped here by England in 1905 had come direct from American mills there would be more spindles in America to-day. In spite of the efforts of the Japanese people to cut down the imports and of the Japanese mills to control the home market, there was more cloth imported the first half of 1906 than in the first half of 1905, when there was a boom in the demand, caused by the war. Japan is forging ahead along textile lines, but is not building mills fast enough to control the coarse-goods market in Manchuria and Korea and also the demand for finer goods at home. Undoubtedly in time, probably very shortly, the coarse and medium grades made by Japanese mills will drive out all competition.

They will also manufacture the finer goods, and from my observation of their mill systems and workmen I see no reason why they should not in time successfully do so and build up a working force of highly trained foremen, who in time would convert a larger portion of the working force into skilled operatives. In the meantime every new factory established in Japan means a larger market for foreign goods, for with the increase in wealth caused by manufactures the needs of the people will increase, and especially for foreign luxuries, fine cloth, etc., which they can not now make themselves.

MARKET NEGLECTED BY AMERICANS.

The Japanese market for cotton piece goods has not been cultivated by our cotton-mill manufacturers nor by our commission merchants. On most lines no effort has been made. A representative of one of the largest American importing houses told me he had not seen an American cloth salesman for three years, but he could hardly attend to his business because of the swarm of English salesmen continually wanting to show him new samples and quote him latest prices. The indifference of the American manufacturer along this line, which is in marked contrast to his keen competition on most other lines in Japan, is undoubtedly due to the impression that this is a small market for cotton piece goods and what field there is for cloth is being rapidly taken possession of by the native mills. To a certain extent this is a cheap market, but on certain lines there is a good demand for goods on which American mills can compete and on which, also, it will be a good many years at least before the native mills can

get a monopoly. Note the market held by England in 1905, as shown in the following table of cotton goods imported in that year:

	United Kingdom.	United States.	Germany.	Others.	Total.
Bookbinders' cloth	$92,201	$12,635	$23,810	$33,108	$161,754
Drills	321,219	181,380	134	3,413	506,146
Duck	11,819	836,194	1,500	4,593	854,106
Flannels	10,831	290	143,518	86,127	240,766
Prints	648,639	.....	16,479	31,370	696,488
Satins and Italians	999,939	3	.....	20	999,962
Velvets	390,223	.....	37,224	4,597	432,044
Cotton and woolen plush	4,898	1,735	8,017	498	15,148
Sheeting	8,677	1,171	.....	343	10,191
Shirting, gray	3,124,273	.....	2,247	40	3,126,560
Shirting, white	826,248	4,437	2,252	16,976	849,913
Shirting, twilled	49,503	.....	.....	40	49,543
Turkey red cambrics	87,862	.....	.....	5,439	93,301
Umbrella cloths	395,333	.....	834	.....	396,167
Victoria lawns	214,353	129	.....	.....	214,482
All other cotton tissues	404,719	81,192	35,049	49,046	570,006
Total	7,590,737	1,119,166	271,064	235,610	9,216,577

It will be seen that of the cloth imported in 1905, 82.4 per cent was from England and only 12.1 per cent from America.

TENDENCY OF THE MARKET.

The tendency of the market is exhibited in the following table, showing value of the main cotton cloths imported in the calendar years named and the first six months of 1906:

	1901.	1902.	1903.	1904.	1905.	First half of 1906.
Drills	$46,362	$48,345	$54,322	$610,851	$506,146	$40,233
Duck	55,663	38,273	37,149	502,985	854,106	39,185
Prints	340,234	1,301,016	987,688	266,047	696,488	403,593
Satins and Italians	842,248	844,268	570,429	328,273	999,962	443,071
Velvets	226,766	615,538	379,854	146,788	432,044	116,621
Gray shirtings	1,496,826	2,535,326	1,802,938	1,167,851	3,126,563	1,746,996
White shirtings	287,872	595,888	324,246	318,781	849,913	388,488
Umbrella cloths	543,033	413,661	280,444	293,673	396,167	503,456

It is seen that the abnormal import of duck during 1905, caused by the war demand for it, has dwindled to small proportions. The market for drills is also rapidly shrinking and is now unimportant. On these two lines there is no prospect of much revival of business, as they are being made in sufficient quantities by the native mills.

The biggest item in the cloth imports has always been gray shirting. What is classed as gray shirting includes both gray printers and the ordinary gray shirting. The gray shirtings imported, as well as several other classes, such as cambrics, etc., are mostly 18 square, 44 inches wide, 46 yards long, and weigh 12 pounds, being about 3.85 yards to the pound. The price ranges from 12s. to 16s. per piece, say 6¼ to 8½ cents a yard. The gray printers are put up in 120-yard lengths and are about 30½ inches wide. They were formerly about 31 inches, but are now usually made 30½, and the reduction in width of half an inch allows a reduction of about 3d. a piece, which is done to meet the Japanese demand for cheaper goods. These gray

printers are bleached in Japan and printed in Osaka, Kyoto, or Tokyo. The most salable weight is about 15½ pounds (7.75 yards to the pound), which come full weight and are usually retailed as 15¾ pounds. The c. i. f. price is about 18s. 10d. per piece (3⅜ cents a yard). The weight ranges from 14 to 16 pounds, but the 14 pound is too high for this market and the 16 pound too good, so 15½ pounds is usual weight. On gray and scoured cambrics there is a fairly good business. The latter are made from Egyptian cotton, sell for about 12s. to 16s., and are used instead of the Japanese silk as lining for kimonos, also for quilts, etc.

INCREASED DEMAND FOR SHIRTINGS AND PRINTS.

The close of the war has caused an increased demand for shirtings. The import of $3,126,563 in 1905 was the record on this cloth, but for the first half of 1906 there was imported $1,746,997, and for the one month of July alone $622,143.

On white shirtings the demand continues good. This cloth is always 36 inches wide and 50 yards long. It was formerly 40 yards to the piece, but is now usually made 50 yards. The extra length is not only some saving at the loom in weaving longer cuts, but as the same number of pieces of the new length as of the old (i. e., forty) are packed in a case it saves something in cost of packing and freight, and so permits of a trifle closer price. The 17 square (17–17 ends per quarter inch) sells for about 12s. 9d. (about 6. 2 cents a yard). Other usual constructions sold here are 18 square, 19.20 square, and 20 square per quarter inch.

At present there is a big demand for print cloth of all kinds. The demand that arose with the war has increased, and there will be more print cloth imported this year than in 1905. The native mills will break into this later, but at present there is a larger demand than they can supply. In the month of July alone there was imported $176,092 worth. Of the regular prints imported the demand is for a 30-inch, 24-yard, about 16 or 17 square. The 17 square 32s and 40s yarn is now about 8s. 3 d., which is about 8¼ cents a yard.

SATINS, ITALIANS, AND UMBRELLA CLOTH.

On cotton satins and Italians 30 to 32 inches, 40 to 45 yards long, 19–22, the demand is very good. The price ranges according to quality, from 7 to 16 cents. There is a very good demand also for Venetians, same construction about 20 cents per yard. The greatest proportionate demand during the first half of 1906 has been for cotton umbrella cloths. In 1899 not a yard of this cloth was imported. In 1905 there was imported $396,167 worth, and for the first six months of 1906 the value reached $503,459. These cloths are 40, 42, 44, 46, and 48 inches wide and 40 to 45 yards long, 19–22 per quarter inch. They are made of Egyptian cotton exclusively, about numbers 60 and 70. Some are plain finished, some Schreiner, some mercerized, etc. In making the Schreiner finish a fine-lined cold roller is used that gives a peculiar finish. The plain finish, 44 inches 45 yards, sells for about 14 cents a yard; the Schreiner finish about

three-fourths cent more. The printers, shirtings, satins, and umbrella cloths above described are the largest and most promising fields, though there are a few others.

Bookbinders' cloths are sold in widths 38½ to 40 inches and 35 to 40 yards long. Cotton flannels are 30 inches inside selvage, 40 to 45 yards long, and sell for 10 to 12 cents per yard. Immense quantities of flannel are now being turned out by native mills.

VELVETS, PLUSHES, SATINS, ETC.

Cotton velvets are about 22 inches wide. Some of the higher grades are made up to 27 inches. They run 38 to 40 yards long and about 12 to 16 cents per yard. They come in solid blacks, also in blue, red, violet, and maroon. Cotton and silk plush is not made over 24 inches for furniture plush, 40-yard length, and are about 16 to 18 cents a yard. Dress plush is made an inch or two wider. Victoria lawns have a fair sale and come in 12-yard lengths 40 inches wide and in construction 10–12 up to 22–22 per quarter inch. The 16–15 sells for about 2s. 3d. per 12 yards. The best market demand is undoubtedly for shirting, printers, satins, Venetians, and umbrella cloth. Probably one-third of the cotton mills in the United States are on printers, and if the mills will cater to the demand they could secure the business, not only on printers, but on gray shirting and satins and possibly others.

There is at present not much demand in Japan for fancy cottons, leno work, fine dress goods, etc., but there is some business done at a profit along these lines. There is not much demand for imported dyed goods, the prints being more in use on account of their cheapness.

Like all oriental nations the Japanese prefer loose, flowing clothing, but do not as a nation incline to the contrast of colors usually considered typical of tropical climate people. The Japanese dress very quietly, even more so than Americans. The babies are decked out in very gay colors, contrasts of purple, yellow, red, etc. The children wear mostly big patterns of "kasuri." This is the name given the large patterns of squares, blocks, lines, etc., and are mostly white patterns on a blue ground. Blue is a favorite color, probably more so than any other single color, varying from indigo to very dark blue. The older they get the more soberly the people dress, and the men wear no loud colors. Black may be said to be the national color in cloth, and the clothing mostly used is very narrow-striped gray and black. The younger girls affect gay colors, and on holidays that is true of a large portion of the people, but ordinarily the "daimio-jima" is the national costume. The name "daimio-jima," which means "daimio stripes," is said to have been derived from the fact that anciently it was the distinctive dress of the daimios. Next to the stripes, small white dots on a blue ground seem in most common use.

WOOLENS, SILKS, AND COTTONS FOR KIMONOS.

The higher and more wealthy classes still use silk for clothing; in fact, its use seems to be extending instead of decreasing, probably due

to the increase of wealth per capita. There is also a lot of imitation silk, silk and cotton mixtures, used especially for kimonos in daimiojima.

Woolen goods are being used in increasing proportion for clothing, especially underclothing, and this is a promising field for our manufactures. There was recently imposed on this a consumption tax of 15 per cent, but this will hardly curtail its use, especially as a consumption tax (10 per cent) was also imposed on cotton goods.

The majority of the people dress in kimonos made of print cloth, and use mostly the narrow 13 to 15 inch widths (supposedly 1 shaku wide) of print cloth made in the native mills. These print cloths are put up in neat packages, about 25 to 33 shaku long (30 to 40 feet), tacked twice at each end, with attractive labels, and with a bunch of silk floss to match pinned to the front. They are in pasteboard cases in most instances. Some are sold wound up in a roll of same length. For the better grades there is also used a large quantity of the 30-inch imported print cloth, most of which is printed in Japan.

HINTS FOR AMERICAN MANUFACTURERS.

The average Japanese buyer, whether wholesale or retail, is not very farsighted. He buys goods on their appearance and feel, and not for their durability or wearing qualities. They go to English or German importing houses at Yokohama or Kobé, look at samples, and then order so many cases to be the same in appearance but to be cheaper. The latter condition can only be obtained by lowering the quality, and this process is going on all the time. This is where some American firms have lost. They either introduce the very best qualities, whose prices are too high to meet the competition of others, or, noticing the general tendency of the Japanese to buy close, introduce low-grade goods, whose appearance is such that they do not attract the buyer. The common saying here is that the American fine qualities are too high in price and the cheap goods too poor. The English and Germans have the production of attractive cheap goods down to a science.

Running cheap goods through hot calendar rolls, singing off all filling threads, putting up in neat bolts tacked nicely, attaching attractive labels, and baling carefully are items that do not cost anything like it does to throw the goods out of the factory as fast as made without a thought for their attractiveness to the buyer. The rough-finish, crumpled-looking goods may be made from better cotton and more durable and lasting, but as compared with a smooth-finished, attractive-looking piece of goods of really poorer wearing quality they do not appeal to the buyer. More attention should be paid to the finish and method of putting up our goods, especially in detail.

In regard to trade-marks or designs, simple pictorial marks, such as dragon, butterfly, lotus, or something of the kind, is better than simple lettering, especially long words. This is for the reason that it is often translated into Japanese, and long words are apt to be abbreviated. Pictorial representation will also catch the eye and be easily remembered. There is no prejudice against religious emblems, but the sixteen-petaled Imperial Chrysanthemum must not be used.

TEXTILE MACHINERY.

KIND OF LOOMS NEEDED—PREJUDICE AGAINST AMERICAN MAKES.

In the following report Mr. Clark says that there is an excellent opening in Japan for the sale of power looms and describes the kind of looms best adapted to the mills of that country. British manufacturers of cotton-mill machinery dominate in that field as in the supply of cotton goods, and some of the reasons for this domination are furnished:

At present Japan is a better field for the sale of machinery needed to make finished products than for the manufactured products themselves. In no line of business is this truer than in cotton manufacturing. Japan is straining every nerve to change from a consuming to a producing nation, and a great amount of money will be put into textile machinery in the next few years. The tendency of all the mills is to add looms and make cloth for the export trade. The great market for cloth of the kind that can readily be made by Japan in Manchuria and Korea has stimulated the weave mills, while the yarn business has to stand severe competition in China with Indian yarn, and at present the yarn market is dull. Many Japanese yarn mills are considering the question of changing to weave mills, and several have recently done so.

There is a fine opportunity for our textile-machine manufacturers to gain a foothold in Japan. The textile-machinery market is dominated by the English to an even larger degree than the textile market. Reports from England are that textile-machinery manufacturers are overwhelmed with orders and can not give quick delivery. Spinning machinery is being turned out at Oldham and elsewhere in vast quantities, and shops are running overtime. The loom makers in Blackburn and Burnley are turning out more looms per month than ever before and are much behind with orders. Makers of reels, slashers, engines, and boilers, etc., are running behind on delivery. Much of this unprecedented activity in textile-machinery factories in England is produced by the foreign demand, of which a good portion, like that from Japan, rightfully belongs, on account of proximity, to the United States.

The first mill in Japan that was a success had English machinery, and the other mills followed. Machinery from Oldham, Blackburn, Burnley, etc., is found in all the Japanese mills, but very little American. There is some prejudice against American textile machinery as being too high high in price and too light in construction. Notwithstanding his dexterity in certain lines of manufacture, the average Japanese is a very rough workman, and the managers therefore prefer heavy machinery from England instead of the really better-designed American, overlooking the fact that an eyebeam properly constructed is fully as strong as a solid bar, and that in such instances extra metal is useless.

ENGLISH MACHINERY PREDOMINATES.

That the English control the market for textile machinery is due entirely to the indifference of our manufacturers. The English, be-

sides having their agencies, send experts out continually, and do everything possible to facilitate buying, our manufacturers paying little attention to the market and even not giving quotations when desired. A local American firm that handles machinery, a little while back, noting the amount of money going to England for textile machinery, wished to see if some of it could not be diverted to America. They accordingly wrote to one of the largest companies manufacturing looms in the United States of the big market, and asked for quotations to see if we could not profitably compete. The answer came back in due time that the firm appreciated his inquiry, but did not care to make any quotations unless they knew the name of the particular mill the machinery would be ordered for. Contrast this with what would have been the result if the circumstances had been reversed and application had been made to England.

The textile-machinery imports are increasing rapidly, as shown by the following table:

	1903.	1904.	1905.	First six months of 1906.
Cotton-printing machinery	$19,629	$17,980	$11,187	$19,403
Cotton-spinning machinery	267,501	316,942	614,117	556,177
Cotton-weaving machinery	39,670	77,418	193,282	66,829
Total	326,800	412,340	818,586	642,409

Of the $818,586 worth for 1905, there was shipped from the United States only $14,613 of cotton-spinning and $22,512 of cotton-weaving machinery.

There are several new factories being projected, and established mills are enlarging, and there will probably be nearly 100,000 spindles installed during 1907.

There is a prejudice among Japanese mill managers against American textile machinery. They assert that it is higher in price, lighter in construction, and takes more repairs. The mills were equipped with English machinery and were at first operated by Englishmen, and the Japanese naturally cling to what they have been accustomed, but if our manufacturers seize the present opportunity to get a foothold in the market and to prove the labor-saving qualities of the American textile machinery this prejudice can be removed.

RESULT OF THE KANEGAFUCHI LOOM TEST.

For the last year the Kanegafuchi Spinning Company, which is the largest in Japan and operates 218,080 spindles, has been conducting at its head mill in Kobe an experiment to determine the best loom. They installed 100 looms, of which 10 were plain looms from Draper Company, Hopedale, Mass.; 30 plain looms from Platt Brothers (Limited), Oldham, England; 12 Platt looms with warp stop motions; 30 plain looms from the Toyoda Shokwai Company at Nagoya, Japan; and 18 Toyoda looms with warp stop motions. The trial resulted in favor of the English looms without stop motions and looms have been ordered from England to replace the Japanese looms. The 100 looms have been running on 44 by 44, 36 inches, 3¼-yard

shirting, making cuts 40 yards long, weighing 13 pounds. The yarn was a mixture of Indian, Chinese, and American. In blending three cottons of differing length of staple, different color, different texture and feel, and different spinning qualities, great skill is shown by the Japanese, but it is impossible for the resulting yarn to be as strong as yarn made from pure American cotton; and if too much twist is put in it kinks too badly. For this reason warp stop motions cause too much stoppage of the loom for coarse plain cloth, and are very much opposed by the operatives.

The American looms were given a black eye at the start by coming out in a broken-up condition due to bad packing and to rough handling, while the English looms arrived ready for work. While admitting that the American loom with American operatives is all right, the main argument made by the Japanese against its use is that it is badly designed for this market and that, as compared with the heavier English make, the breakage is excessive. This is due to the rough handling that is given the looms by Japanese operatives and loom fixers. The Japanese loom is inferior in weaving qualities and could not stand the usage.

Owing to the many mills now changing or proposing to install looms, the Kanegafuchi will probably remain on yarn, though there is talk of its building a shirting factory to replace English shirting. It is the largest mill in Japan, however, so the results of the tests are important for their effect on other mills. The present price of American plain looms is about 185 yen c.i.f. and English 170 yen.

LOOMS AT THE GONIKAI EXHIBITION.

An exhibition was being held at Tokyo showing the manufactured products of Japan and the methods of manufacture. It opened September 1 and ran three months. The exhibition showed great diversification of manufactures. The leading lines shown were textiles, silk yarn and silk cloth, cotton yarn and cotton piece goods, blankets of all kinds, both cotton and woolen, and hand and machine made matting. There was also a great exhibit of rugs made with cotton warp and rice-straw filling. Also many cotton carpets. The great majority of the cotton piece goods were prints put up in bolts about 1 shaku wide and about 33 shaku long. A cloth measure shaku is 14.91 inches. The goods were for sale as well as for exhibition, and were similar to those sold in the stores. Each bolt was put up in an attractive manner, and a great majority had silk thread attached for use in making up the garments. A good many pieces are sold rolled instead of folded.

One cotton mill in central Japan operates 100 looms on 1 shaku print cloth, but the majority of the immense quantity of narrow prints made and used so extensively for kimonos are made on hand looms. The price is from yen 1.80 to 2.80 per bolt, or 4½ to 7 cents per yard. In addition to the narrow cotton prints, which were the main exhibit of cotton piece goods, there were also interesting exhibits of the goods made in the mills in Japan, comprising mostly gray sheetings, drills, T cloth, cotton crape, and cotton flannel, also some duck and shirtings and twills.

One of the most interesting sights at the exhibition was the three new Japanese-invented looms, and, as showing what Japan is doing

in invention, they are important. They are inferior to the British and much inferior to the American looms, but are ingenious, and illustrate the growing determination of the Japanese to strike out along new lines and to manufacture their own textile machinery as well as their own textiles. What first strikes one is the amount of wood used. The frames of all three are of wood, and wood is used wherever practicable, such as loom beam heads, whip rolls, levers, shuttle boxes, etc. The largest loom is labeled "The one tsuda system habutai power loom." It is used for weaving the transparent silk habutai about 36 inches in width. Except for the wood used and modifications in details this loom is not important.

LOOM WITH NOTABLE FEATURES.

The next loom is for weaving silk or cotton cloth about 24 inches wide and is notable for its method of harness raising, its stop motion, and also for being self-contained; that is, no driving belts, pulleys, gears, or levers being outside the framework. The driven pulley is under the loom at the middle of the cam shaft and is belted from below, and belt shifted by foot lever at front of the loom. There are no cams, treadles, or strapping used to operate the harness. The two harnesses used have wooden ends and slide in grooves in the framework. To the center of each heddle frame end is fastened a curved iron rod, the other end of which is attached to a short set-screwed crank arm on the cam shaft. As the cam shaft revolves, this crank arm through this rod imparts a reciprocal up and down motion to the harness, and by means of the set-screwed crank arm their motion relative to each other and to the lay can be adjusted. The width of shed can be regulated by changing length of rod where it joins the crank arm. The picking motion is also peculiar. While the picker stick is thrown with cams, levers, and lug straps in the usual way, the picker stick proper is under the loom and half the usual length. It is of wood, but at the top there is hinged by means of a screw an iron rod that runs out horizontally and curves up into the shuttle box, and the end of this rod carries the picker firmly attached. With this arrangement, owing to the hinge construction, the picker moves in a straight line, and there is no need of any parallelization of the picker stick motion. This loom also had an ingenious warp stop motion attachment operating through the heddles.

ANOTHER NOVELTY.

The third loom is used for weaving the narrow print cloth that is usually made about 13½ inches wide. It shows more points of dissimilarity from the usual styles, especially American makes of looms, and so is of more interest than the others. No lug straps are used, but the power is applied to the picker stick by means of a lever striking a casting on foot of picker stick. The foot of the picker stick is bolted into a casting that is pivoted on a horizontal bolt from another casting on the end of the sword rock shaft. A wooden lever is pivoted at the back of the loom on the side, and its front end rests on the projecting casting attached to the foot of the picker stick. An iron piece with projection is bolted to the middle of this lever. The end of cam shaft projects beyond the loom and carries a free roller on the crank pin of a short crank arm set-screwed on the end of the cam

shaft. As the cam shaft revolves, the roller is carried around and strikes the casting on the lever, which is forced down and strikes the projection on the pivoted casting carrying the picker stick, thus causing loom to picker. The picker stick is brought back into position by a spring arrangement. Of course no parallelization of the picker stick is possible. The picker is loose on the end of the picker stick and kept in position by the sides and tops of the wooden shuttle boxes. This picking motion is patterned after a common English make, but is modified. The shuttle boxes being made of wood there is no binder used to check the shuttle and prevent rebounding. The checking is accomplished by two loops of leather, one inside the other fastened with thumbscrew to projection under end of the lay.

The last two looms are made by the Toyoda Shokai Company at Nagoya. The company makes in all four styles of looms, viz: (1) The wide loom for 30 to 36 inch cloth with iron frame. This loom has not been a success—50 tried at the Kanegafuchi mills are to be replaced with English looms; (2) the narrow loom with iron frame; (3) the narrow loom with wood frame; and (4) the narrow loom with wood frame and automatic stop motion. The No. 3 is the most popular. It is stated that this factory has sold between two and three thousand of that loom, and are now making 300 a month. There are 230 of these narrow looms used in a branch of the Miye mill at Nagoya, but the majority of them go to small hand and power loom establishments scattered throughout the Empire. A large number of these small establishments are operated by various kinds of power—steam, water, oil, etc.—the majority, however, probably being run by gas engines. The price of this narrow loom with wood frame is only yen 95=$47.50, so it is the cheapest loom of any efficiency that can be obtained for this purpose.

UNITED STATES BEHIND IN TEXTILE MACHINERY.

On most lines of machinery—railway, electrical, etc.—there are many American experts in Japan and the orders secured are evidence of their value. On textile machinery, however, this is not true, and practically but one American firm has secured any orders on this line at all and their agency is with a Japanese house, which sells ten English to one American machine. The Japanese, on an average, is a rough workman and the demand is for heavy textile machinery built after the English style, and Americans introducing textile machinery here should ship their heaviest pattern frames, and if necessary should change their patterns and put in more cast iron. That the American machinery is better designed and has sufficient rigidity has nothing to do with the question. Local demands must be catered to.

American textile machinery to-day can turn out more per spindle and per loom, with less labor, than any other in the world, and though the Japanese are strongly prejudiced in favor of the British the Americans can surely secure their share if they will go after it in the right way and, if necessary, modify the machines as to weight, etc., to meet the demand. Now that mule spinning, flyers for roving frames, and card clothing are successfully produced in America, and ring spinning and looms have there reached the highest state of perfection, there is no reason why the American textile machinery manufacturer should not only control his home market but also reach out

after that of Japan and the adjacent markets and secure the profit accruing from the immense amount of money that will ultimately be spent by Japan and China along these lines. At present Japan imports all her textile machinery and the prospect is that she will have to do this permanently. Coal is abundant, though the price is rising, so that steam power is not cheap. In iron, however, Japan is not well supplied, and the deposits of coal and iron are not adjacent. America, where the deposits of coal and iron are side by side, can manufacture machinery, because of this reason alone, to say nothing of the large scale on which the business is conducted, and land it in Japan cheaper than the Japanese can ever make it at home. Therefore, a market for textile machinery built up in Japan will be a permanent and an ever-increasing one and now is the time to strive for it.

GENERAL DEVELOPMENT.

PRIVATE ENTERPRISE GIVEN GOVERNMENTAL AID.

Mr. Clark points out in the following report how the Japanese Government is striving to encourage the establishment of all necessary manufactures in order that the nation may be practically independent.

The excess of imports over exports for the last ten years averages $23,684,116 a year. To be able to meet the interest on the national debt it is almost essential for the Japanese to economize, to buy abroad nothing they can make at home, and to increase their exports of manufactures to a maximum so as to change the trade balance from a deficit to one in their favor. This is recognized by the Government, and no pains are being spared to inaugurate and foster manufactures, to educate the people in the new trades, and to facilitate the transportation and sale of the manufactured products abroad.

Practical methods of fostering the cotton industry have been continued since 1861, until Japan now exports more manufactures of cotton than she imports. Inaugurated by the Government, the industry is upheld by the Government to-day, and can hardly yet stand alone. Among aids by the Government at present the most important is the actual loan of money, which has been borrowed abroad by the Government at from 5 to 8 per cent, and loaned to the mills on long terms at 4½ per cent. The Government loans new dyeing and weaving machinery to the mills, and encourages all new mills and facilitates the sale of their goods in China and Manchuria. It also encourages fairs for the exhibition of goods and machinery, and makes appropriations for commercial and technical schools. Of these there are no less than 11 devoted to dyeing alone.

The number of students at the higher grade schools, other than industrial schools, has considerably diminished of late years, but the increase of applicants for entrance into the commercial and industrial schools is pronounced. In 1899 some 919 students out of 2,789 graduates of middle schools, or 32.9 per cent, entered the higher schools, preparatory to taking the university course. Five years later, in 1904, only 9.1 per cent of the total number of middle school graduates entered the higher schools—in actual figures, 794 out of 8,558.

On the other hand, the number of new industrial schools, both for male and female students, has greatly increased during the same period. The students in these schools numbered 24,719 in 1899, but in 1904 had increased to 114,150, leading all other schools in the rate of increase, which is 43 per cent of the total increase.

GROWTH OF THE COTTON INDUSTRY.

Cotton manufacturing is one of the largest industries of Japan, and the people are looking to it more than to any other industry to change their adverse trade balance to a surplus. Exports are increasing, and "made in Japan" has become a familiar sign in the Orient. The export of 267,114 bales of yarn during 1905 was the largest recorded with the exception of 1903, when 307,201 bales were shipped. For the first half of 1906 the exports were 124,820 bales. Of that total only 3,342 bales were above No. 20s yarn. The great majority of the yarn exported goes to Shanghai for distribution in China, where it comes in competition with the yarn from India and also with the native yarn made in China, which, in connection with the increasing value of the tael making exchange higher, leads to a decline in the yarn exported to China from Japan. In the last six months of 1903 Japan exported 312,300 piculs (picul=1⅓ pounds) of cotton yarn to China, as compared with 617,243 piculs exported to that country by India. But in the last half of 1905 Japan exported to China only 175,206 piculs and 172,423 piculs in the first half of 1906, while India exported 509,117 piculs in the corresponding time in 1905 and 496,634 piculs in the first six months of 1906. So far as the export of yarn to China is concerned Japan has lost ground.

The exports of cloth are steadily increasing. The yarn mills have not increased their export as rapidly, owing to the big increase in the home demand. The total exports of manufactures of cotton for the last three years and for six months of 1906 is shown in the table that follows:

Articles.	1903.	1904.	1905.	First half 1906.
Wadding	$117,798	$170,832	$315,117	$11,879
Yarns:				
Under No. 20	14,892,181	13,523,500	15,779,512	7,908,773
Over No. 20	817,126	1,110,729	843,719	294,601
Blankets	202,094	146,397	254,018	166,509
Handkerchiefs	18,846	21,920	38,038	87,738
Towels, Turkish and honeycomb or huckaback	476,681	687,101	804,044	544,515
TISSUES.				
Imitation nankeen	224,286	496,689	1,101,945	233,867
Japanese toweling, plain weave	76,752	60,295	41,296	57,765
Made of gassed yarn	40,614	40,773	111,936	60,848
Crape:				
Under 20 inches	128,443	120,107	99,386	68,110
Over 20 inches	107,284	214,277	235,509	112,530
Drills	107,942	304,771	141,379	179,465
Flannels:				
Under 29 inches	206,635	230,930	294,571	61,163
Over 29 inches	232,104	126,799	144,774	25,020
Sheeting	120,723	100,487	322,470	243,483
Shirtings, gray	1,212,227	1,279,449	2,005,340	848,733
Shirtings, twilled	93,479	65,397	140,440	23,183
Tea cloth	530,407	343,965	552,391	162,330
Turkey-red cambrics	21,596	23,335	14,896	2,839
Others	335,162	464,440	539,681	583,145
Total cotton tissues	3,437,654	3,871,714	5,146,014	2,662,481

OCEAN SHIPPING FACILITIES.

The shipping that reaches Japan is sufficient for all requirements and is more than meeting the great increase in trade. Shipbuilding and shipowning by Japanese, which were already making steady progress, rapidly advanced after the passing of the navigation-encouragement law in 1896, whereby all Japanese-owned vessels of over 1,000 tons engaged in the foreign trade were entitled to subsidies, the amount of which is proportionate to the distance run and the tonnage of the vessels. The Nippon Yusen Kaisha, the largest Japanese company, operates lines to India, Australia, South America, and Europe. The Toyo Kisen Kaisha operates a line of steamers to America, Philippines, and China. The Osaka Shosen Kaisha operates lines to China and Hongkong. The Daito Kisen Kaisha steamsers run to Chinese inland ports. There are two lines to North China, one running via Korean ports to Newchwang and the other to Tientsin. These lines are all subsidized, and the last two are the ones about which it is persistently rumored, though there is absolutely no proof, that the Government has arranged for them to take Japanese cotton piece goods to Manchuria at half rates.

In freight rates America has the advantage. The rate per 40 cubic feet or 2,000 pounds (at ship's option) on cotton piece goods is as follows: New York via San Francisco, $12.50; New York via Suez, $6.68; Liverpool, $10.33; Hamburg, $10.33. On time, New York freight via San Francisco can reach here in twenty-five days, against forty days from Liverpool and fifty days from New York via Suez. The usual time, however, is nearer forty, fifty, and seventy days. This gives our merchants and manufacturers quite an advantage in time over their English competitors, and was one reason why our trade with Japan increased so during the war. The freights vary, of course, at different times. The New York-Suez route, for instance, was only $5.62 in June, and the overland rate $11.25, but both have since raised their rates.

INADEQUATE HARBOR ACCOMMODATIONS.

Kobe and Yokohama have fine harbors, but neither has good harbor facilities. The existing lack of facilities are a serious drawback to trade. The mayor of Kobe recently estimated that owing to the defective harbor accommodations shippers and ships lost at least 2,451,823 yen ($1,225,911) during 1905 alone. This state of affairs not only causes loss to the consignees, but it affects the price of goods as well. The loss of $1,225,911 is figured as $806,016 due to cost of keeping ships during their enforced stay in the harbor, $285,131 for lighterage charges, $130,714 for cartage, and the remainder for expenses of unnecessary anchorage. At Kobe there is only one pier for public use, and it is only 582 feet long by 42 wide. As over 2,000 ships entered the harbor in 1905, some of them over 625 feet long, it can be seen that very few used the pier. The present arrangement taxes the consignees in two ways—for lighterage and for cartage. The Pier Company made average charges during the four years ending the first half of 1906 of 52.27 sen and 43.88 sen, respectively, for the landing and loading of cargoes per ton. After the proposed harbor reconstruction this will be cut down to 28.05 and 19.66, respectively,

for landing and loading, which means the saving of 24 sen, or 12 cents a ton. On this unit the present loss on 2,409,430 tons of 1905 will give $285,131 unnecessarily spent for unloading cargo. There being no rail connection between the shore and the station, the Kobe consignees lose annually $130,714 for cartage. There are other losses accruing from delay besides the damage or total loss of goods incurred by the slow mode of unloading and the lack of shelter accommodations. Harbor works are projected that will eventually cost $6,250,000. The Government has stated its determination to make this the great port for the East and thus to take the place held by Shanghai and Hongkong in some respects, as neither of these have harbors as convenient.

At Yokohama the Governmment has entered into partnership with the town in the harbor improvements whereby the Government is to spend $2,740,000 and the town $1,350,000, a total of $4,090,000. The facilities for unloading at Yokohama are better than at Kobe in some respects, as it has two piers, but the great majority of vessels have to unload by lighters.

CUSTOMS DUTIES.

The changes as regards cotton and cotton goods in the tariff which took effect October 1, 1906, are appended.

Article.	New tariff.		Old tariff.		Conventional tariff.	
	Unit.	Rate.	Unit.	Rate.	Unit.	Rate.
Unbleached shirtings and sheetings	10 sq. yds	0.31 yen.	Sq. yd	0.16 yen	Sq. yd	0.006 yen.
Bleached shirtings and sheetings	do	0.41 yen.	Ad val.	10 per ct.	do	0.010 yen.
Twilled shirtings	do	0.37 yen.	do	do	do	0.011 yen.
Dyed and red shirtings	do	0.39 yen.			do	0.013 yen.
T cloth	do	0.43 yen.	Sq. yd Ad val.	0.009 yen 10 per ct.	do	0.009 yen.
Drills	do	0.63 yen.			do	0.016 yen.
Duck	do	1.56 yen.	Sq. yd Ad val.	0.053 yen. 10 per ct.	do	0.053 yen.
Sateens and Italians	do	0.76 yen.	Sq. yd Ad val.	0.017 yen. 10 per ct.		
Prints	do	0.49 yen.	Sq. yd Ad val.	0.017 yen. 10 per ct.	Sq. yd	0.016 yen.
Flannel	do	0.73 yen.	do	20 per ct.	Ad val.	10 per ct.
Velvet	do	1.36 yen.	Sq. yd Ad val.	0.041 yen. 10 per ct. 20 per ct.	Sq. yd	0.041 yen.
Victoria lawns	do	0.21 yen.			do	0.006 yen.
Mosquito netting	do	0.41 yen.	Ad val.	10 per ct.	Ad val.	10 per ct
Lace curtains	Ad val.	30 per ct.	do	35 per ct.	do	10 per ct.
Pure cotton tissues not otherwise provided for.	do	30 per ct.	do	20 per ct.	do	10 per ct.

The countries having a conventional tariff with Japan are France, Germany, and Great Britain. These tariffs, expire in 1910. The three nations having a conventional tariff are not affected by the new tariff on the articles to which the conventional tariff applies. The United States is entitled to most-favored-nation treatment in the matter of customs dues, but has no conventional tariff.

REGULATIONS AS TO CERTIFICATES OF ORIGIN.

Shippers are warned that all goods not accompanied by the necessary certificates of origin at the time of their clearance through the custom-house at the port of entry are liable to the duties of the

statutory or maximum tariff and not to the "conventional" or minimum rates. Certificates of origin which are not in order will not be accepted, and no extra time will for any reason be granted for the presentation of such certificates. The certificate of origin must contain the marks, numbers, descriptions, number of packages, weights, and measurements of the goods and place of production or fabrication.

The following clause in the tariff should be noted:

The dutiable value of imported articles shall be the actual cost of the articles at the place of production, fabrication, or purchase, with addition of packing charges, cost of transportation, insurance, and all other charges incurred up to arrival of the articles at the port of importation: *Provided, however,* the cost of articles and charges are questionable, an amount of value of the articles at the port of importation, from which a sum of import duty is deducted, shall be taken as the dutiable value.

It should also be noted that there is an extraordinary special consumption tax on textiles of all kinds, not conforming with classification of articles under the import tariff, of 10 per cent ad valorem on cotton textiles and 15 per cent on woolens. Gassed, mercerized, and other similar yarns have to pay a duty of 10¾ cents per kin of 1.32277 pounds, or about 8 cents a pound. All other yarns pay 6 cents per kin, or about 4½ cents a pound. The conventional tariff, however, gives England and Germany a rate of only 2.09 cents a kin on plain and dyed yarns, which is about 1.57 cents a pound, to which the United States is also entitled under the most-favored nation treatment. Raw cotton, either ginned or in the seed, is admitted free.

BANKING FACILITIES AND MONEY CONDITIONS.

The principles and customs of banking in Japan are much the same as in the United States. There are two classes of banks in Japan, the regular national banks and the special banks. Whenever any particular industry is to be advanced or new territory to be exploited the Japanese open a special bank. There are now six special banks besides the Bank of Japan, which is a special bank. It was established by the Government to act as a medium between and backer of the smaller banks, and is the head and center of the Japanese banking system. It has charge of the receipts and disbursements of the national treasury and so is really part of the Government. The Yokohama special bank was organized with the special object of financing the foreign trade of the country. A large portion of Japan's foreign business goes through this bank, and it is the bank most used by foreigners. It has numerous branches, of which one is in Hawaii. It also has branches in China, at Peking and other points. It recently opened a branch at Hankow and one at Antunghsien, pursuing the method adopted by England of sending bankers wherever their merchants go, so the two may work together. Several agencies have been recently established in Manchuria. The Hypothec Bank of Japan was created to furnish long low-term loans on mortgages of immovable property for agricultural and industrial enterprises. The Industrial Bank of Japan makes it its special object to handle bonds and shares of various kinds. The agricultural and industrial banks are local banks furnishing long-term loans at low rate of interest, and being established in every prefecture are most useful in connection

with their central organ, the Hypothec Bank of Japan, in stimulating and supporting the agricultural and other small industries of the interior. The Bank of Taiwan has charge of the Government receipts and disbursements for the island of Formosa and has a semi-official position similar to that of the Bank of Japan. The Hokkaido Colonial Bank was established to supply capital for exploiting Japan's northernmost island of Hokkaido.

SAVINGS AND FOREIGN BANKS.

Savings banks are also well established in Japan, now having over $100,000,000 in deposits, or a fourfold increase in ten years. This is even more significant of the thrift and increasing wealth of the people than the fact that in the same time the ordinary deposits have increased over twenty-five fold. There are clearing houses modeled after those in London and New York, which have greatly facilitated business since their establishment. There are plenty of foreign banks in Japan established by English, Germans, French, Dutch, and Russians. The only American bank is the International Banking Corporation.

The English dominate the banking business, and this is a great help to them in furthering their commercial interests. They also have a regular system with their banks, by which the clerks and higher officers spend three years abroad and then three years at home. This is a very important factor of their business, for not only does it keep the head clerks at home well informed and in close touch with the actual financial conditions prevailing on the other side of the world as to exchange, credits, prospects, etc., but it is of great value to the English exporter. An English merchant or manufacturer desiring to introduce a new line in the Orient or to extend an old one can go to his Liverpool or London bankers and find out almost as much as to his prospects and the possibilities of the business as he could do by an actual trip to the East. Japan is already crowded with banks, both native and foreign, but so valuable has this system proved that in their fight for the trade of Japan the English have recently decided to establish another large bank in Japan, and the Anglo-Japanese Bank will open for business in a short time.

The International Banking Corporation, with headquarters in New York City, is one of the youngest banks here. It is doing a good business, is of value to American interests, and if a system of rotation of officers between New York and Japan was adopted would undoubtedly be of great value to the development of more American business.

BUSINESS METHODS.

SUGGESTIONS FOR INTRODUCING GOODS.

The best methods for American manufacturers to introduce cotton piece goods, etc., into Japan are explained in the following report:

The best system to follow is that used by manufacturers at home in introducing their goods into a new town: First place the agency in

the hands of a local house, and then send out hustling salesmen to drum up the town, show the goods, and turn the orders in through the local house, and thus get the trade started. There are a good many American firms having branches in Japan, though only two or three handle textiles to any extent. The manufacturer should first get in touch with the New York house and make arrangements for them to handle his goods, and obtain from them specific information as to the conditions of packing, transportation, market requirements, etc. He should then pick out his best salesman, a man with a thorough knowledge not only of how to persuade people to buy, but one who understands the technique of manufacturing and can decide whether changes requested in widths, lengths, construction, or finish can be profitably made by his mills.

This salesman should take out not only a full line of samples with prices, but also several cases of the main goods he intends to introduce. On arrival this expert goes to the local house and secures their "banto" to go around with him to give information as to the most reliable firms and to introduce him. He shows his samples, proves their superiority, agrees to make modifications in detail where desired, quotes prices, and takes trial orders, which he can fill from the cases which he has brought with him, so getting his goods into immediate use, or else turns the orders in to the local house, who cables them to the New York office. In six months' time the trade is established, and the expert leaves it to the local house to push, but returns for a month or so each season. This is the practical system in use by other nations and by many of our own manufacturers on other lines. An expert salesman so sent out should stay long enough for the customer to use the goods and find what modifications are necessary to make them suitable for general use.

ENERGETIC SALESMEN NEEDED.

Live sales agents are needed to sell cloth here, as elsewhere, and much more can be accomplished this way than by simply placing the account with a local house, which of necessity handles many other lines and can not be expected to work up an enthusiasm on each line. When the manufacturer can not afford a special sales agent he can yet get good results, though in a slower manner. Cases of the goods most likely to meet the trade, if sent out on consignment, after consultation with the home office, would probably facilitate business. A loss of 50 per cent on the first cases might be calculated on, but it costs money to open any market, especially one in the hands of our strong commercial opponents, and this plan in some cases has been tried with success. Dealing through an established house, the manufacturer can get in touch with the needs of the market and also avoid the losses always incident to a newcomer, unfamiliar with the market and the men he is to deal with, trying to build up a trade. In the case of large manufacturers or an association of manufacturers selling noncompeting articles it would pay them to employ their own agent, some one familiar with the market, and deal direct. This would save commissions and probably pay in the long run, but the first cost is much greater.

Catalogues, especially if in Japanese, and advertisements in the native papers often bring many inquiries, but are of more value as

used by a local branch house or by a salesman on the spot for drumming up trade than they are to one at a distance, and long-range advertising as a rule does not pay.

GERMAN METHODS.

The English control this market exclusively on textiles, though the Germans are struggling for a foothold. Much has been said as to the enterprise and persistence of the German merchant, and it is currently said here that when a German starts after a contract he moves his wife and children up to it, settles down, and besieges it until it capitulates. German foreign commerce owes a great deal to the fact that their merchants and manufacturers will cater to small orders and also especially to the extent to which they give credit. This has been their policy for a good many years, and has been the great stumbling-block in the way of the British and American merchants, who complain that it disorganizes business and at the same time does not always pay the Germans. The Germans give credits of two, three, or four months, and on certain lines for still longer periods, against the practically cash documents system of the English and Americans. A long-time credit policy is a more powerful lever in moving orders than the finest or cheapest line of goods calling for cash payment. The British, as a rule, are conservative and unwilling to spend anything unless they see definite returns in sight, whereas the Germans will spend money freely in anticipation of orders.

An agent, whether American or otherwise, unfamiliar with the market conditions as to price, credit system, etc., and intent only on orders could undoubtedly do much damage to his competitors without permanent advantage to himself, but live agents with the actual goods, or at least samples of the goods, are undoubtedly the way to reach this market. The Japanese buyer is a very inquisitive person, and wants to see what he is buying and to talk with the seller direct and to ask many questions, some of them shrewd, some of them practically unconnected with the subject, some of them even foolish, but all to his mind important. As between a seller showing goods to be seen and felt, and especially explaining any details desired, and the buyer having to ascertain these by tedious correspondence, the man on the spot, of course, has the advantage; and the English and Germans have many men on the spot.

The English have built up this market by years of attention to its needs, and will not be dislodged without some effort, but on such lines as prints, gray shirting, and satins there is no reason why American mills, with their quicker delivery and cheaper freights, should not control the market. This will have to be done by the active work of expert salesmen. Reports of consuls, special agents, trade journals, etc., can inform our manufacturers as to the condition of affairs, but the actual work will have to be done by the manufacturer, or his special agent.

ADVICE TO MANUFACTURERS.

An American manufacturer trying for this market should understand that some effort must be put into it, some time and money spent, and he should not attempt to build up a business unless prepared to stand by it. Not so very long ago an American house, finding yarn

dull, sent a sample of a soft yarn that is imported into Japan to a branch house here with quotations. About three weeks later the local man picked up a fairly good order on this and sent it to the mill, but received a letter in reply that business at home had in the nearly two months that had elapsed improved to such an extent that they could not handle it. The importer therefore had to place the order with an English house, the English never being too busy to handle foreign orders. It is a peculiar situation that in Japan English goods are handled by American firms, whereas in China English houses handle American goods. If the American mills attempt this market seriously they can easily find agents.

The loss that has at times come to those dealing with the native merchants has been mainly due to their "banto" introducing unreliable customers, and usually occurs to those but newly established. The facilities now offered through the banks and agencies for ascertaining a firm's resources and general standing in Japan are about as good as in the United States. Most of the transactions are for cash on arrival of goods. The majority of American goods come through American branch houses at Yokohama, Kobe, etc., and the Japanese merchant pays cash to the local branch house on receipt of goods ordered, the transaction simply being between the local American and local Japanese houses. This is the simplest plan and most favored, though in some cases it has led to loss. When the Japanese orders a bill of goods from the local American house, the goods are guaranteed by the American to be delivered in a certain time, and he cables his home office to this effect. The Japanese does not make any payment until the arrival of goods. If in the meantime the market has dropped, the Japanese will often go to the American and intimate that he is not prepared to stand all the loss and that the American should divide the loss with him. The alternative of doing this or of losing the customer is presented, for there is keen competition between America, England, and Germany, and others, and the merchant can easily get the goods he wants elsewhere.

WHERE ADVANCE PAYMENTS ARE REQUIRED.

In contracts as to certain lines made to order, where a refusal to accept would probably mean a total loss to the importer, an advance payment is usually required as an evidence of good faith. Where goods are shipped direct, cash is also usually required, though in a different way. Some of the largest Japanese houses maintain bank credits in New York and other leading foreign cities, and under instructions from them the bank pays the American shipper cash in New York in return for invoice and bill of lading showing shipment of goods. This is popular with shippers, but is expensive to the importer and not much favored by them. Other Japanese houses arrange this through their banks having connection in New York, and secure a fixed amount of credit for a fixed period, payable against shipping documents. As the money so paid out by the New York bank is received with bank charges from the importer by the Japanese bankers on arrival of goods, they notify New York, and the same amount again becomes available to meet shipping documents against this customer. This is sometimes known as a "revolving credit."

The usual method in most cases, however, is by draft attached to shipping documents, and the banks in the United States discount the paper of responsible manufacturers at a small charge for exchanges and collection against the security of the shipment. Drafts are drawn at sight or thirty, sixty, or ninety days after sight, usually sixty or ninety. If drawn for time, the draft is either marked "documents against acceptances," in which case the shipping documents and possession of the goods are handed over to the importer on his acceptance of the draft and before the time of payment, or else the draft is marked "documents against payment," in which case the shipping documents and possession of the goods do not pass to the importer until actually paid for. The latter is the safest plan, but is is not popular with the importer, as he often wishes possession of the goods and opportunity to realize on them before payment. In the "documents against acceptance" case, however, the shipper has to be more assured of the reliability and commercial standing of his customer. All of these are cash transactions with the American exporter, and very little business is done in other ways. Local houses, however, frequently give extensions of time to their particular customers on whom they rely so they can have opportunity to realize on goods before payment. The installment plan is not much used except possibly among the Germans.

AMERICAN GOODS POPULAR—PACKING.

Contrary to the almost universal cry that the American manufacturer and merchant does not pay enough attention to the foreign market, does not send out men to study the needs of the market, and will not cater to these needs when found, this can not be said of his action on most lines in regard to Japan. Of all the foreign nations doing business here the American is the most enterprising and persistent, and American goods are very popular. The British merchant has been here a long time and is rooted in the soil, the German caters to small orders and gives long credits, but both are losing to the American.

The increase of American goods is shown by the fact that in 1895 the United States only supplied $4,759,000 worth of goods to Japan out of a total of $66,311,000 in imports, Great Britain leading with $23,173,000 and China, Germany, and India following in order. In the year ending June 30, 1905, the United States ranked second with $51,935,000, Great Britain leading with $57,459,000. In 1895 we supplied only a little over 7 per cent; in 1905 we supplied over 21 per cent of the total imports.

In regard to packing so much has been said as to this by agents, consuls, trade journals, etc., that any further comment seems superfluous. The local firms report some improvement in this respect, but the fact remains that the majority of American goods are carelessly packed. On many lines the American does not charge for packing, where his British competitor often charges 5 per cent, but the British and German goods will come in so much better condition that the merchant is willing to pay the extra charge.

In all shipments to the East it is wise to pack so as to protect from rain if the goods are liable to be damaged by water. Americans use

too light cases, as a rule, and do not use enough iron straps. In shipping in the cheaper grades of cloth, such as drills, sheetings, etc., the English, like all others, use bales, with about forty pieces to the bale, and wrap a waterproof paper or waterproof cloth, frequently oilcloth, round the goods and bale with gunny cloth or burlap. Between the oilcloth and the gunny cloth, on two sides, half-inch planks are often used to protect the goods from hooks. Usually six ties, painted to prevent rusting, generally red, are used.

JAPANESE COTTON MILLS.

CHEAP LABOR WITH LONG HOURS—ENGLISH MACHINERY USED.

The first thing that impresses a Western mill man on entering a Japanese cotton mill, whether in card, spinning, or weave rooms, but especially the two latter, is the number of operatives employed. Hands swarm everywhere, and the sight down a weaver's alley is like that down a narrow crowded thoroughfare. The absence of men is also very noticeable, all the weavers, all the spinners, and a good proportion of the card-room help being women. Even the doffers are girls.

Japanese mills as a rule are well built, well organized, and well run. Mills like the head mill of the Kanegafuchi Spinning Company, at Kobe, under the superintendence of Mr. Fukuhara, who spent five years in American mills; the Osaka, and others of the larger mills compare favorably with mills on similar classes of goods in the United States. Plenty of extra help is used, so there is no singling on top of spinning frames, the rolls are well picked, and the room well swept.

Other mills were not so well kept and the help not so carefully trained. One fairly good-sized mill that I visited evidently was not well superintended. From the large engine with the flywheel out of true, and stuffing boxes badly worn, to the spinning frames that were carelessly oiled, there was evidence of careless machinists and section hands. There were bobbins on the floor, and it was not well swept. On the looms there were an excessive number of ends thrown back, showing careless work at the warps. Most of the looms being on three-harness work, this did not affect the cloth as much as it would on two-harness.

SKILL IN MIXING COTTON.

The Japanese show skill in the mixing, which is done by many mills, of American, Indian, and Chinese cotton. They have plenty of help, however, and have the bales opened up ahead and thoroughly mixed by hand and left in bins to open out and regain normal condition. The English system is followed in all the mills. After being opened the cotton goes through a willow, a single opener to the hopper-feeding machinery dust trunk, and then to the exhaust opener, intersciutcher, and finisher scutcher. Some of the mills cut most of the preliminary operations up to the exhaust opener, but result was bad, as shown by more ends down on the spinning.

The majority of the cards that I saw were made by an English firm, whose make of textile machinery predominates in Japan. Of American cards I did not see or hear of a single one. In carding, as in other things, the Japanese follow the English, and get small production from their cards. As a rule the Japanese card very light, not getting over 180 pounds a day to the card, where our Southern mills, on similar coarse work, would get 225 pounds and over. Most of the cards that I saw were 45 inches in width, as were the scutcher laps. The light carding employed calls for more cards, and so increases the initial cost, but makes much better running, of course, and is really necessary, dealing with the class of cotton generally used. The card grinding was only medium, and in some of the mills very poor.

ENGLISH SPINNING MACHINERY.

In the spinning machinery, which was also mostly made by the same English firm, the frames are all English and are very long as compared with the standard American frame, which is 208 spindles. At the Kanegafuchi mill, for instance, the frames were mostly 380 spindles and 6-inch traverse, while some were 400 spindles and 5-inch traverse. Owing to the short staple the Japanese have to insert one or two more turns of twist per inch, and for the same reason they use a smaller ring than ours, by an eighth to quarter inch, for similar numbers. On the coarse work, 10s to 16s, the more advanced of the Southern mills in the United States are using seven and eight traverses, and consequently longer shuttles, saving both in doffing at the spinning frame and in stoppage of loom. Talking with a Japanese boss spinner, he said they had never been able to use over 5½ to 6 inches, and the yarn couldn't stand the strain of the longer traverse.

Nearly all the Japanese mills run their twist left handed instead of the usual right-hand twist; that is, looking at the twist in the yarn the slope is to the left instead of to the right. Japanese and American yarns or cloth similarly made can be distinguished by this peculiarity. Also the twill in drills, twilled shirting, etc., is left handed, whereas the majority of American drills are of the right-handed weave. Reversing the twist in yarn, of course, is a plain operation, consisting of simply turning the spinning bands; but a merchant at Yokohama told me of an instance where an American manufacturer refused a good order on some yarn for Japan rather than reverse his twist. In most instances the main spinning-room shaft runs down the center of the room, and the spinning frames are across the mill so as to get the light up the alleys. A long single belt is used to run from pulleys on the main shaft around guide pulleys and down to the spinning frames, which is at right angles to the shaft. Rather heavy shafting was used as a rule; also the heavy English hanger, which is made with a surplus of useless cast iron.

ORGANIZATION OF MILLS.

The cotton mills are organized pretty much as in England. The superintendent is called "kobachr," meaning "master," of the mill. In the same way the heads of the various rooms are called "masters" instead of "boss," "carding master" instead of our "boss carder," etc. Owing, however, to the great multitude of operatives in the

spinning and weave rooms, the control is divided, and one man has charge of the machinery and the other of the help. For instance, in the spinning room the "hozen" looks after the section men and sees that the machinery is kept running and in good repair, while the "unten" looks after the help, sees that they arrive promptly, keep their sides up, etc., and sees that they are placed. Section hands and loom fixers run about same sections as in America, varying in size with the number and quality yarn run. Loom fixers, on the plain work run in nearly all Japanese mills, fix from 50 to 80 looms.

PAYMENT OF WAGES.

The piecework system is not as developed as in American mills and nearly all hands are paid by the day, in some mills even the weavers being so paid. Spinners in the different mills get 20 to 30 sen (10 to 15 cents) a day, averaging about 12 cents, probably. Usually there are 3 girls to a frame, or, say, 125 spindles each. The doffers get 7 to 10 sen a day and are nearly all girls. I was especially interested in the doffing, for the doffing may be considered a criterion as to the efficiency of the management. In the mills I saw doffers at work. frames were doffed pretty quickly, 6 to 8 doffers getting to a frame at a time. They do not use doffer carts, but instead the girls' aprons have a loop at each corner, through which they run their wrists when doffing and throw the full bobbins into the apron. The empty quills were first laid along the thread board and then the frame stopped, and each doffer taking off full bobbin with one hand, putting on empty bobbin with other, they doff a frame in good time. It looks funny to see a doffer drop a bobbin, shuffle a foot out of her flat shoes, pick it up with her toes, and go on without stopping. The girls empty their aprons into a canvas bag like a mail sack at the end of the frame, and the roving carrier comes around and carts it off to the reel room on a cart on a track running down the side of the room. These narrow tracks are used all through the Japanese mills. The reelers run one reel apiece and make as high as 25 cents a day.

WEAVING ON PLAIN LOOMS ONLY.

In the weave room about the only men are the fixers. They usually run sections of about 60 looms each. Each weaver runs two looms, a few three. Some of the mills experimented with warp stop motions, but the warp was not good enough and they made excessive stoppages. They were, therefore, strongly opposed by the operatives, and it was abandoned. There is practically no weaving in Japan except on plain looms two, three, and four harness-work. The looms, like everything else, are nearly all English. At the Osaka Spinning Company, at Osaka, I found 500 Drapers (the plain loom) which were running very well, though the weaver said they were too light for the work, and complained of the breakage as compared with the English looms; but I think the fixers did not know how to handle them, which was probably the cause of the trouble. The Japanese ; their labor very cheap, but wages are rising, and if they train ir weavers and loom fixers to the use of improved labor-saving ms they could dispense with the great surplus of help they use, r higher wages, and make bigger profits. Several mills are install-

ing looms or increasing the number they already have, also several new weave mills are projected, so there will be many new looms bought by the Japanese, and the American loom manufacturer should get his share. Some of the shuttles used were made in England, some in America, and some in Japan. All of the mills that I visited used twine harness, and there is probably very little, if any, wire harness used.

In most of the weave rooms the loom alleys were up and down the length of the room, the main shaft ran down the middle of the room, and the looms were driven from countershafts. In some mills, at the Fiyi Spinning Company, at Tokyo, for instance, the arrangement is different. The looms are arranged across the mill; the main shaft runs down one side, being supported by post hangers, and from this main shaft, which is about 4 or 4½ inches in diameter, 2-inch shafting lines project out at right angles, one for each alley, and are driven with large bevel gears from the main shaft.

WEAVERS' PAY—USE OF SIZING—GOOD CLOTH.

The prices paid weavers vary, but at the Kanegafuchi mill on 3-yard 44 by 44 sheeting it is 7 cents per 40 yards, and production is about 50 yards a day of twelve hours. Looms run from about 160 to 185 picks per minute in the different mills, 180 being usual. On the sheetings, etc., that are made the warp is sized from 15 to 30 per cent, but the finished cloth has about 18 per cent. Some mills use little sizing and other size heavy. As a rule, the sizing is not excessive, as the Manchurian customer has been trained to appreciate American light-sized sheeting and drills and refuses to pay high prices for clay and starch. The sizing, however, is heavier than the American, and this, with the quality of cotton used, gives the average Japanese cloth a rougher feel.

The Japanese sheeting, shirting, drills, etc., made by the better-run mills is good cloth, well woven, and gives American cloth serious competition. The feel is a little different, and there is too much leaf and specks in some of it, and there is room for improvement in the evenness of the yarn; but, on the whole, it is well woven, with good selvages, and makes a nice-looking piece of cloth. In cleanness, evenness of yarn, and feel their cloth is inferior to American, but it is well woven.

The yarn made by Japanese mills is all bunched before being baled. Some mills do this by hand, but most of them use small presses. The bundles weigh 10 pounds and the same number of skeins are put in as the number of the yarn. Thus a bundle of 16s contains 16 skeins. The bundles are tied twice and make a neat, compact package. Each package is wrapped in good stiff blue wrapping paper, and the mill trade-mark pasted on outside, showing a gilt elephant, a blue fish, or some such design. Forty of these bundles are then put in the press and baled, using one sheet of wrapping paper and one burlap. A half-round strip of bamboo is put at each corner before buckling the ties. Usually four orange-colored ties are used, making an attractive-looking bale. The usual weight of bale is 3 piculs, or 400 pounds. In baling for the home trade only 20 bundles are put in, the covering is rice-straw matting, and the bale or bundle tied with rice-straw ropes.

The officers of the better managed and most successful cotton mills pay a good deal of attention to the improvement of conditions among the help and to increasing the facilities for education, especially education along textile lines. This is partly a survival of the old feudal system among the Japanese, the paternal method whereby the man at the head is the father of his people and responsible for their welfare, but is based not only on philanthropy, but good business as well. Many of our American mills, especially in rural districts of the South, where general educational facilities are poor, build, equip, and maintain their own schools. They do not, however, as the Japanese do, give technical instruction, and we might copy after the Japanese in this respect with profit. The head mill of the Kanegafuchi Spinning Company at Kobe is a kind of show mill, and articles based on the housing, educating, and training of help by this mill are a little erroneous as to Japanese mills generally, as this one and a few others are far in advance in this respect.

EMPLOYMENT OF GIRLS.

Girls constitute the bulk of the help, who, as a rule, only work from six to eighteen months, or long enough to purchase their wedding outfit, when they return home and have to be replaced by others. The help being, as it were, transient and consisting of girls, the company has built dormitories, which are in the form of squares, with a court in the center, and two stories high. Each set of girls are in the care of a matron. The buildings and surroundings are clean, well lighted, and convenient. A hospital with regular doctors and nurses is provided; also a hospital for infectious diseases. Cloakrooms, bathrooms, etc., are also provided. A large one-story cement-floor room is fitted up for a dining hall. The adjacent kitchen is well arranged and carefully screened all around to protect against flies. The company provides the food to the operatives at a cost of about 7 sen a day, whereas the actual cost is about 10 sen. In the center of the room was a glass case with bad piecings, yarn with slubs, reedy cloth, etc., showing defects in carding, spinning, and weaving. This is used as an illustration of bad workmanship to be guarded against, and on the rest days the foremen bring the new hands here and lecture to them on the work.

EDUCATING THE WORKMEN.

A two-story brick building is used for a school, with rooms for kindergarten work, and on up to the higher branches. Technical instruction is carried on with special classes of operatives, who work half time and are instructed the other half. This is a free course, but after taking the course the operative has to work three years with this company. In this way the company builds up a competent set of foremen and section men and binds them to their interest. This company, as do some of the others after a prosperous year, distributes rewards to their hands.

The workmen pay 3 per cent of their earnings to a sick and provident fund, and the company pays the same amount, and also these special grants to it at dividend-paying times. The sick are cared for and the old operatives given pensions. Liberal compensation is also given in case of accidents. Besides the dormitories the company rents

out small electric-lighted houses for about 50 cents a month. Those working three years are allowed houses rent free on marriage.

That four-fifths of the operatives in the mills are women is probably due to the fact that women will work for less than the men. Men are only employed when absolutely necessary, and for bosses, loom fixers, the heavier card-room work, etc. Weaving in Japan is almost entirely a woman's job, as spinning is with us. The fact that the looms are run almost entirely by women was of considerable advantage to the mills during the war, as they were not affected by the calling out of the reserves, though it caused an advance in the wages paid. Ultimately the result was to give the mills a larger supply of help, as the women had to work more when the supporters of the families were drafted for service, and weaving operatives were thus increased instead of diminished.

NO SUNDAY REST.

In Japan Sunday is not regarded, and the mills do not stop for the day. The majority of the mills have two holidays—the 1st and the 15th. In many mills the engine starts at 6 o'clock the morning of the 2d, and runs continuously until 6 o'clock the morning of the 15th; then starts at 6 o'clock the morning of the 16th and runs continuously until 6 o'clock the morning of the 1st. No stop is made for dinner, the hands taking thirty minutes in rotation, and spare hands taking the place of each batch. Each operative works from 6 to 6, with thirty minutes for dinner, and the night shift comes on at 6. Thirteen to sixteen twelve-hour days on a stretch necessarily makes the hands slower and less efficient. Though they do not observe Sunday, a good number of the mills have by experience come to see the material good that comes from having one day in seven for rest, and one of the largest groups of mills observes the 4th, 11th, 18th, and 25th of each month. These four rest days are utilized by the management to overhaul and clean machinery, check up results, instruct green hands in regard to their duties, etc. The national holidays, of which there are about ten, are observed, so that even in the mills making a practice of stopping only two days for rest the holidays effect a stop of one or two more days per month.

The hours of work and the number of rest days vary with the locality and the mill. Each mill has its own system, and though they work together in some respects, through the Japanese Cotton Spinners' Association, in publishing comparative reports, etc., they are very jealous of each other, and keep the details of their business, methods of operation, etc., a secret from other mills. This instinctive secrecy, as shown in other industrial lines, such as machine shops, shipbuilding, etc., has made the office of consulting engineer in Japan a very lucrative one, as new projects can not copy from old, but have to call in expert advice to select the machinery, etc.

DECREASING WORK OF HAND LOOMS.

There are a good many hand-loom establishments containing up to 100 looms, and some of the finest cloth made in Japan is produced on them. There are also a great many small establishments run by water, steam, gas engines, and some by electricity, that really pro-

duce the bulk of the cloth for home supply. Some of these spin their yarn on hand-spinning wheels, but the great majority buy it from the regular cotton mills, so that the yarn sold by the cotton mills is an indication of the cloth being produced in Japan.

I went through several of these small mills. In the first one I visited, in Tokyo, the building was a one-story frame structure with dirt floor. There were fifteen looms in operation, nearly everything except the cam shaft and gears of wood. Twenty more looms were ready for work and carpenters were building others in the same room. Jute warp and cotton filling was used and cloth for bags made. In one corner of the room a girl with a spinning wheel was changing the yarn, which was bought from a cotton mill, from the skein and winding it on 3½-inch quills. The looms were operated by hand, and there was a girl to each loom. The operator pushed the lay back and forth with both hands and operated the pick levers, throwing the shuttle by means of foot treadles. The looms were run at about 110 picks per minute. The girls got 50 sen a day for 10 yards, which is 2½ cents a yard, and is less than a yard an hour. For similar cloth a Japanese cotton mill would pay 14 sen for 40 yards, or about one-third of a cent per yard, and that is the reason hand looms are dropping out.

HOW THEY MAKE FINE CLOTH.

The finest cloth I saw woven in Japan was at an 88-hand loom establishment in Osaka, weaving muslin 68 by 68, 52s warp and 64s filling. In this case a small engine and boiler was used to run the slasher and warper and to furnish steam for the dyeing. The yarn was brought in skeins, dyed in closed steam kettle, and washed in tubs by hand. Only a small portion used was dyed. The yarn was then run by hand wheels onto bobbins. These bobbins were placed on shelves of a rough creel, a certain number of ends gathered together, about 200, and passed through a coarse wraith about 4 inches wide, down through a size box, and then up, down, and around about twenty 3-inch steam-filled dry pipes inside a glass-sided box, and then out and through a wraith about 4 inches wide onto a warp beam with iron sides, and which was about 16 inches in diameter and 4 inches between heads. These narrow beams had about 4-inch barrel with 2-inch opening. A number of these beams were then slid on a shaft, according to pattern to be made, either white, or pink and white, and the ends all passed through a wide wraith onto a wooden loom beam about 36 inches wide. These then went to the weave room, where there were 88 looms run by hand.

It was a warm day, and each woman had thrown her kimono back and was stripped to the waist, so as to give full play to her arms. The lay in this case was operated by foot treadles, and the picker-throwing shuttles jerked first from one side and then from the other by strings fastened above the looms. I timed some of the looms and found them running 110 to 120 picks per minute. The weavers were paid 3 sen (1½ cents) a yard and were required to finish 15 yards a day. The cloth, after weaving, was carried to a place in the suburbs and there block printed in very elaborate patterns.

MILLS WELL BUILT.

Most of the Japanese mills are well built, with two brick walls for two-story mills, cement floors in the weave sheds, and sawtooth roofs. Some are four stories high, but most of them only two and a number are only one. At the Osaka Spinning Company at Osaka, the main building is four stories high, heavy brick walls, stone lintels and window sills, and stone trimmings. A 90-foot heavy brick smokestack was used. The building and grounds were inclosed in a high brick wall with stone curbing, and the whole looks up-to-date. At the Settsu Spinning Company the buildings were only two stories. This mill, however, illustrates the advantage the Japanese have in shipping. It was right on the water at the entrance to the canal, and boats could come up to a wharf at the mill gate. After baling, the yarn was dumped off the press onto a hand car on a narrow-gauge track and run down an incline right into the ships' hold, saving all cartage, freight, etc. Most of the mills are sprinkled, though I saw some that were not. Also humidifiers, very similar to American make, made by English firms were in use in the larger mills. One mill I noticed in which the heating and humidifying was accomplished by means of 12-inch tin pipes down the center of each room with outlets every 20 feet, live steam being used. Most of the mills have complete fire equipment, but the majority of the hose was small, 1½ inches, as compared with our standard of 2½ inches. The mills were mostly well lighted, both natural and artificial. At the Kanegafuchi there was a 16-candlepower light at both back and front of every loom.

At the Nippon Cotton Mill at Osaka I saw 80s to 100s being mule spun from Egyptian cotton, and 60s spun on ring frames from American cotton, then gassed and burnished. The work was running well and the quality of yarn made was good. In this mill English carding and spinning is used, and the combers, spoolers, and gassing and burnishing machinery came from England.

In passing it may be noted that the Japanese word for cotton spinning company is "boseki," and the word for weaving mill, "skokafu." Thus they say Osaka Boseki and Temma Skokofu. "Godi" means joint-stock spinning company, and "hosoito," fine yarn spinning, and "menneru," a flannel company. The names of the mills themselves often indicate either the business or the location. The termination "yama" means mountain, and "gama," seashore, indicating location. "Nai" means domestic, and "gai," foreign, so the Naigai Weaving Company means weaving company for the foreign and domestic markets.

INDIA.

OPEN FIELD FOR COMPETITION.

VALUE OF THE MARKET TO GREAT BRITAIN—METHODS OF DOING BUSINESS.

Special Agent Charles M. Pepper writing from Bombay outlines the extent of the consumption of cotton piece goods in British India, and furnishes facts and suggestions that will interest our manufacturers. His report follows:

Various consular reports and other data published in the Daily Consular and Trade Reports from time to time have given full information about India as the leading world's market for cotton piece goods, and also concerning the progress of the native industry in spinning yarns for export to China and in weaving coarse gray goods for home consumption. These statistical facts therefore do not need to be repeated in detail in giving an outline of the conditions under which American manufacturers must determine whether they will seek entrance into a market which may be said to be unlimited in its possibilities.

For general purposes it is enough to know that the importations of cotton goods and yarns into all India are upward of $130,000,000 annually, and that Lancashire substantially monopolizes this wonderfully valuable trade, having no foreign competition except in colored, printed, and dyed piece goods, which competition up to the present time has made no serious inroads. It may also be restated that the share of the United States in the cotton commerce of India, aside from shipments of $1,800,000 to $2,000,000 of raw cotton, hardly averages $500,000 annually, the goods shipped being gray, unbleached, or sheetings and drills, chiefly from the Pepperell mills.

BOMBAY THE MARKET CENTER.

Bombay is a good point for measuring the possibilities of the trade, since it is not only a great piece-goods market, but is also the seat of the native industry. Ninety per cent of the cotton mills of the country are located in western India, and more than half of these are in the city of Bombay and its suburbs. The native mills are now enjoying a period of extraordinary prosperity, and many which until recently confined themselves to spinning are introducing the latest improved machinery for weaving. Lancashire professes to feel no uneasiness over the possibility that the native mills will be able to turn out some of its own specialties of a quality sufficient partially to meet the wants of the consumers in India.

Should the country ultimately produce better cotton on a large scale, the native mills almost certainly would themselves utilize it, and then the quality of their products might be improved so as to compete with Manchester in their own market, though they would be hampered, as they now are, by the countervailing internal-revenue duty of 3½ per cent ad valorem imposed in the interest of the British mills as an offset to the customs duties on imported cottons. These

import duties are purely revenue and are in no sense a protection for the native industry. However, the possibility of the bulk of the India cotton crop being materially improved in quality is remote. Recently some importance has been given to the experiments of a Bombay mill with what is known as the Spence tree cotton. The mill owners reported that they had passed four bags of Spence cotton through the process of spinning and weaving and that the cloth made therefrom was, in their opinion, the finest cloth that had ever been made in the power looms from India-grown cotton. The cloth was made from 40s warp and 50s weft, and they were satisfied that the cotton would spin a good 50s warp and 70s weft, from which cloth could be made in fine dhotees, a great demand for which exists in India. The total loss of weight in blow room was only 3 per cent. The mill owners said they would gladly give 7 annas (14.2 cents) per pound for this cotton.

THE NATIVE INDUSTRY.

American middling commands about 11 cents, and if cotton can be grown in India on a large scale so superior in quality as to bring 3 cents a pound more, the importations of raw cotton for mixing would of course cease. But this would be of little consequence compared with the ability of the Indian mills to produce a better class of goods for home consumption. That it can be done on a large scale is not yet demonstrated. Notwithstanding the favorable results from the experiment of the Bombay mill by technical and scientific experts, some of the officials are not satisfied that cloth from selected samples is to be taken as an average of the results that may be expected from Spence cotton, and they are withholding their judgment until they can take the average of production under the normal conditions governing cotton growing in India. Matters relating to cotton production, including the Spence experiments, are covered in the consular reports, and I give the most recent developments only briefly in order that manufacturers in the United States may understand that the samples forwarded from the Indian mills are likely to represent about the same quality for years to come. At least no phenomenal advance is to be expected from the native cotton used by the mills, though something better in the way of cloth may be obtained from the use of improved machinery, and possibly from increased efficiency of the native labor.

JAPANESE MANUFACTURERS VIGILANT.

Some regard, however, must be paid to the probability of Japan entering the India market, unlikely as that may appear at the first suggestion. Japan has been and is yet a heavy buyer of the coarse Indian staple for her own mills. It does not seem on the surface that the Japanese mills can import this raw product and send the finished article back to India, to sell in competition with the native cottons for home consumption, though the Japanese factory labor is much more efficient than that of India. Nor is such an outcome probable, even though the Korean cotton crop in time enables Japan to become independent of India for raw material. But what is looked forward to is the possibility of Japan competing with Lancashire in dhotees and

other Manchester specialties. Last year, as I am informed, the Japanese Government sent experts to India, who took back large numbers of patterns of materials used by the people of the different sections of the country, which patterns, as is well known, vary considerably. These were carefully distributed among the different mills with a view to their imitation and reproduction. So far as can be learned, the Japanese piece goods have not yet made their appearance in the Indian market, but they are likely to appear at any time. American manufacturers who have samples of the output of the Japanese mills may therefore find it advantageous to compare these with the Manchester goods sold in India.

NORTHERN INDIA.

A MARKET FOR COTTON PIECE GOODS—HOW TO ENTER IT.

Writing from Amritsar in northern India, Mr. Pepper tells what should be done to sell United States cotton goods in that section. Americans purchase skins, carpets, and rugs in Amritsar, but sell nothing in return.

American manufacturers and exporters who are looking for a market for cottons in India should not confine themselves to the ports of Bombay and Calcutta. Direct importations are made at a number of places in the interior, and among these in the city of Amritsar, which is a distributing point for central Asia as well as for populous northern India. It is a great and growing market and in Indian commercial circles is looked upon as certain largely to increase the volume of its trade from year to year.

Amritsar does business directly with the United States, but this is principally a one-sided business, for it consists in exports of sheepskins and goatskins, carpets, and rugs. New York importers take a large share of the carpets and rugs, for which the hand looms of Amritsar are famous, while the Persian rugs and the cashmere carpets are also brought here for shipment to America. Thus it happens that, though the currents of commerce flow only one way, the means of information and the facilities for an exchange of commodities by the United States, instead of transmitting cash, exist, and American manufacturers who are ready to exploit foreign markets will find the situation favorable.

Amritsar is a native city of more than 150,000 inhabitants in the Punjab, a little less than 1,200 miles from Bombay and a little more than 1,200 miles from Calcutta by the railway routes. From Karachi, on the Arabian Sea, whose geographical position as a port of distribution I have described in a previous report, the distance by rail is about 800 miles. For this reason, though some importations are made through Bombay and Calcutta, the bulk of the imports are through Karachi.

The piece-goods trade centered at Amritsar is in drills, nainsooks, muslins, sateens, etc., with increasing sales of colored prints. Pepperell drills have served to establish the reputation of American

goods, and these are now supplemented by other drills from the United States. A good demand exists for this class, but advantage has not been taken of the demand. Commission agents and dealers who have opened correspondence with the mills in the United States, or their sales agents, complain that they are referred to the London agents and that they get little satisfaction from the latter. This also has been the case with other cotton products than drills. It is a most unsatisfactory way of pushing the sale of American goods, particularly where the inquiries come from dealers who are ready to help increase an established market or create a new one.

WHAT IS WANTED IN COLORED PRINTS.

My attention has been called by commission firms in Amritsar to the growing trade in colored prints as a most promising field for the introduction of American goods, and therefore samples are forwarded to the Bureau of Manufactures with the name of the native firm through whose agency they were procured. Until the mills in the United States choose to familiarize themselves more fully than they have heretofore shown a disposition to do with the requirements of the Indian trade in piece goods these samples, bought in the Amritsar bazaars, may serve to indicate the nature of the existing demand. The samples, while a small selection and not to be understood as complete, reflect the prevailing popular taste and fairly represent the class of colored prints for which the average demand is greatest in October, 1906.

They are meant to show the quality only, designs being furnished by the dealers or commission agents. Lengths are variable, but widths in inches are given and prices per yard in terms of pence or English currency. Prices are free Karachi Harbor, c. i. f. i. c.—that is, costs, insurance, freight, interest, commission. In all colored prints for the Amritsar market fast colors are of prime importance. The vegetable dies which are used in the carpets and rugs woven in the hand looms of this region may be said to create a standard of colors which can not be overlooked in imported calicos.

The import commission business of the Amritsar market is divided between natives and Europeans. Some Calcutta firms maintain branches with local managers, and the representatives of Manchester make periodical visits. While European brokers are entirely willing to take orders for American mills, if they can see a fractional margin of profit above Manchester, for various reasons they are not so ready to seek new connections as are the native commission agents. But in either case the first point for the exporter in the United States is to determine, through the banks and by other means, the trade reputation and the financial standing of the broker. With the actual merchant he has no concern. The broker's commission varies from 2½ to 3 per cent, and he is the responsible and only party in the transaction. This will be understood better from an explanation of the indent merchant system under which the piece-goods business of India is so largely conducted.

THE INDENT SYSTEM.

The local dealer executes a contract or agreement, of which the following form, an actual indenture to a native firm in Amritsar, is an example:

Indent No. ———.

AMRITSAR, *November 1, 1906.*

To Messrs. ——— ———, *Ghulam Sadiq.*

DEAR SIRS: 1. I (we) hereby agree to purchase from you the undermentioned goods at the limits and terms stated below, and for reimbursement I (we) authorize you or your correspondents to draw upon me (us) at 30 days' sight with all relative shipping documents attached for payment, which draft I (we) engage and bind myself (ourselves) to accept on presentation and pay at maturity, or to pay you the invoice amount within 30 days after the receipt or presentation of invoice, notwithstanding any objection I (we) may have regarding or on account of any variation whatever from terms of the indent, such objections if not settled amicably to be referred to arbitration as provided for below.

2. Should I (we) fail to accept the draft on presentation or to pay at maturity or do not pay you within 39 days of the receipt of invoice, I (we) hereby authorize you, or your agents, to sell the goods by public auction or private sale, when and where you like, after having given me (us) 10 days' notice of your intention to do so; and I (we) bind myself (ourselves) to make good to you any loss or deficiency sustained through my (our) default, including all charges and interest at 9 per cent per annum, together with your 5 per cent reselling commission, I (we) waiving all claims to profit should there be any. In case of public auction printed notices of sale to be distributed in the Amritsar market.

3. It is clearly understood that my (our) not accepting the draft on presentation or not paying the same on or before maturity or your invoice amount will not entitle me (us) to arbitration or to make any claim, of whatever nature, against the goods, though I (we) may take up the same later on.

4. It is distinctly understood that if my (our) offers are "free Indian Harbour" no interest is to be charged from date of draft to the approximate due date of arrival of remittance in Europe.

5. Insurance is to be effected by you as usual, any claim against the insurance company will be recoverable by me (us), provided I (we) have retired the relative draft or paid you the invoice amount on or before due date. Should I (we) fail to retire the draft or to pay you the invoice amount on due date I (we) forfeit all claims against the goods or against the insurance company.

6. Bill of lading date shall be conclusive evidence as to date of shipment, and 15 days' delay in shipment shall not cancel the contract. If the goods, or any portion thereof, are shipped prior to the time stipulated, I (we) shall have no right to reject the same, but shall accept them and will recover from you, in Amritsar, interest at 6 per cent per annum for the prior days of shipment after paying for the draft (or the invoice) at maturity. With reference to goods ordered with shipments extending over two or more months, the first or any shipment being late or the omission of any shipment or shipments shall not vitiate this contract, each shipment to be taken as a separate contract; and I (we) shall not claim for late or nonshipment of such one or more lots.

7. I (we) do not hold you responsible for late shipment, nonshipment, or nondelivery arising from strikes, lockouts, accidents at factories, bankruptcy or failure of your manufacturers or supplies, or for nonarrival or late arrival from perils of the sea, quarantine or stoppage in the Suez or Manchester canals, or any other unforeseen causes. Should any portion of the goods not be shipped from causes other than those above mentioned, notice of such delay must be given to me (us) within three days after the arrival of mail from Europe, leaving there after the first week of the extreme time of shipment. It shall be my (our) option within three days after receipt of your notice either to cancel such late portion or to extend time of shipment as requested, or you may ship the late portion at your own risk within two months after the time stipulated and giving me (us) the option of refusing or accepting the goods, and I (we) shall have no claim against you for late shipment. In case of nondelivery, excepting for above reasons, I (we) hold you responsible to pay me (us) whatever damages may be assessed by arbitration as provided for below.

8. Representing patterns to be delivered to me (us), as far as possible with the invoice, but should the patterns be lost through any accident you must deliver before the due date of the draft or the invoice the duplicates, failing which you will have to give in writing the correctness of the goods, taking the responsibility upon yourselves.

9. First half, or beginning of a month, means 1st to 15th; second half, or end of a month, means 16th to the last day of the month.

10. Goods sold "per piece" overlengths not to be charged for and underlengths to be allowed for. For goods sold "per yard" a margin of 5 per cent, more or less, of the total yardage ordered is allowed for variation in length. A margin of an inch in 36 inches, more or less, is allowed for variation in width of pieces. Underwidth to be allowed for, however, and overwidth not to be charged for. This will apply only to shawls, scarves, and dhoties, and not to prints, whites, and grays.

11. With regard to indents sent by mail I (we) may request you, within fifteen days after date of indent, to wire canceling the whole or any portion of the same at my (our) cost. If the indent has been placed by your correspondents before receipt of your telegram, I (we) shall accept the goods; but if the goods are bought by your correspondents after they receive your telegram, or if you fail to wire, after being requested by me (us) in writing to do so, I (we) shall not be responsible for the execution of the indent or such portion as is so referred to.

12. If, after receiving acceptance of any of the offers in this indent, you do not confirm the same to me (us), but sell to some other buyer, I (we) hold you responsible to pay me (us) whatever damages may be assessed by arbitration in Amritsar, as provided for below; but should I (we) fail to increase my (our) limits to the prices demanded by your correspondents for any of these goods, you are at liberty to sell them in any way you choose.

13. No claim or dispute of any sort whatever can be recognized if not made in writing within ten days from the due date of the draft or your invoice after full payment.

14. All disputes or objections regarding this contract, if not settled amicably on my producing the goods for your perusal, must be referred to arbitration of one native and one European merchant or representative of a European firm in Amritsar or Karachi, nominated one by each party, whose decision or the decision of an umpire appointed with your and mine (our) consent in Amritsar, or that of the chamber of commerce, Karachi, will be final and binding upon you as well as upon me (us), and the survey fees, with all other expenses, will be borne by the losing party; but if the award be less than or equal to the amount offered by you before going to survey, the whole cost of survey shall be borne by me (us). If within ten days after being requested by letter addressed to the usual place of business either party fails to appoint an arbitrator ready and willing to act, an ex parte decision of the arbitrator of the other party shall be in like manner binding on both the parties, but in default of my (our) nominating an arbitrator or arranging for the survey within a week after the nominating, I (we) shall lose my (our) right of all claims or arbitration.

15. All invoices and letters re: this indent will be considered as received by me (us) if properly entered in your peon's book to my address and impressions thereof taken in your copy book, though I may not have signed the peon's book and not taken delivery of the document under some wrong impressions.

16. It is distinctly understood that offers, if accepted by telegram, are subject to revision and confirmation by mail.

17. Unless otherwise stated below, it is understood that orders sent by telegram have to be replied to by you within 8 days; and if sent by mail within 60 days from date of indent, after which period it shall be my (our) option either to cancel or extend the time for reply.

18. This contract is between you and me (us) as principal dealing with principal, and anything besides the plain signature written in vernacular shall be considered as null and void.

NOTE.—I (we) have signed this contract having full knowledge of its contents.

THE BROKER'S ORDER.

The list of "undermentioned goods" is filled out on a given form, and with this before him the broker places the order. For example,

the broker forwards to Manchester or London an order for nainsooks, as follows:

AMRITSAR, *November 1, 1906.*

RECOMMENDATION OR INDENT NO. B. 234.

To Messrs. ——— ———,

———— ————.

From Messrs. ——— ———, Gholam Sadiq:

No. of packages—(10) ten only.
Quantity per package—(150) one hundred and fifty only.
Description—White nainsooks.
Price—At 3s. 8d. (3 shillings 8 pence) per piece. F. K. H. (free Karachi Harbor), less return (commission) 3%.
Dimensions—28 inches × 20 yards.
Quality—No. 4032 (manufacturer's No.).
Colors—White.
Finish—As per original quality.
Patterns—Three with each invoice.
Heading—As per original quality.
Fold—19 inches wide × 48 inches long.
Ticketing—A good beautiful lady ticket.
Stamping—Our firm full name on each piece.
Numbering—255 (broker's No.) to be put on each piece.
Parceling—Five pieces in a paper parcel.
Packing—Strong and careful.
Reply—By wire.
Shipment—In three equal monthly lots, commencing from January, 1907.

WHAT MANUFACTURERS HAVE TO RELY ON.

The Manchester firm, while dealing with the broker as principal, has before it a copy of the indenture of the local merchant to the broker, and therefore knows the precise terms of the transaction and the conditions which have to be met. In the event of objections or disputes for which a "survey" or appraisal is provided in the contract between the broker and the local merchant a similar course is taken between the shipper and the broker, the method varying a little in some cases, but following established usages. However, surveys are costly proceedings, and invariably involve loss, so that where disputes arise there is every inducement to reach a friendly settlement.

The indenture quoted above is made out for English trade, and has a few provisions relating to local conditions which might not be understood in the United States because of lack of familiarity with the Amritsar market. But its general purport as an illustration of methods will be easily apparent. The drafts and invoices would not apply, because brokers and dealers insist on ninety days for the United States on account of the much longer time required for shipments to be received.

A brief outline of the importance of Amritsar as a piece-goods market for a large area having been given, samples of prints forwarded, and trade methods described, the next thing for the mills in the United States which want to sell their products in India is to send their own representative, who can spend several months on the ground. I am assured that he would receive every encouragement, especially from the native brokers and dealers.

DELHI AN IMPORTANT CENTER.

Delhi is the most important center of the piece-goods trade in the interior of India. It has marked strategic railway advantages, being about 900 miles distant from Bombay, 800 from Karachi, and 950 from Calcutta. It thus has the benefit of all those markets to select from. Bombay is its chief port of importation. Delhi is not only the distributing center for the central provinces and for much of northern India, but buyers come there to supply the market for central Asia, Afghanistan, and some parts of Persia. Though the city is a very active commercial center, the piece-goods business is the leading line. The transportation and banking facilities enable it to keep in touch with the world's markets, and it has an active chamber of commerce which aims to serve the interests of all classes. Samples most in demand in the Delhi bazaar are forwarded.

AUSTRALIA.

EXTENT AND CHARACTER OF MARKET.

STEADILY GROWING TRADE—KIND OF GOODS DEMANDED.

In a report from Melbourne, Special Agent Harry R. Burrill describes the market in Australia for cotton cloths, and furnishes information regarding the class and styles of piece goods demanded by the people which will be valuable to American manufacturers:

Conditions governing the piece-goods supply and demand in the eastern States of the Commonwealth are at variance with those obtaining in Western Australia. That manufacturers of the United States may clearly understand the situation, a supplemental report, entering more fully into detail regarding the business transacted and pointing out the possibilities for the extension of the American trade in these commodities, is submitted. In one respect, however, it must be admitted that practically the same conditions exist between the markets of the eastern and the western parts of the continent, namely, the great predominance of English-made fabrics. It is estimated that between 90 and 95 per cent of the piece goods imported annually into Australia are made in British mills, and, as the relative value of the exports from the various countries to this Commonwealth has remained practicaly unchanged for several years, it can readily be seen that only by the most determined and persistent effort would it be possible to expand the trade in piece goods of American manufacture.

Among importers and dealers of the States of Victoria, New South Wales, and Queensland certain well-defined reasons are advanced why the popularity of the English piece goods has been retained and why it would be an extremely difficult undertaking to dislodge them from control of the market.

In the first place, they are put up in widths that will cut to the best advantage for the purposes required, and consequently, in this respect, meet the demands of the trade.

Second. English goods are all sized, and this finish, or feel or filling, as it is called here, is required by the Australians. It is a matter of entire indifference to them whether this foreign substance used in the manufacture of the goods detracts from or adds to the value or lasting quality of the fabric as long as it presents an attractive appearance when offered over the counter.

Third. The Australian consumers naturally prefer English-made goods, especially when these goods suit their taste better than those manufactured by competing countries.

Fourth. The quality of British goods seldom change or deteriorates, for the English manufacturers appreciate the vital importance of invariably maintaining the standard of their output, and in this may be found one of the secrets of their pronounced success in foreign markets.

For purposes of comparison and to demonstrate to American manufacturers and exporters the size and value of this market, together with our discouragingly inadequate representation, the following table, compiled from the Trade and Customs Returns of the Commonwealth for 1905, and estimated in round numbers (the latest complete figures obtainable), is presented. The total is several thousand dollars less than the total valuation of the piece goods imported into Australia in 1905, for the reason that no attempt has been made to enumerate the countries exporting less than $500 in value.

PIECE GOODS AND COUNTRY OF ORIGIN.

Cotton and linen:	
United States	$625,000
United Kingdom	12,810,000
Canada	50,000
France	65,000
Germany	250,000
Netherlands	40,000
Switzerland	65,000
Velvets, velveteens, plushes, etc.:	
United States	2,000
United Kingdom	1,400,000
Belgium	20,000
France	525,000
Germany	585,000
Switzerland	340,000
Woolens, or containing wool:	
United States	1,500
United Kingdom	7,325,000
France	1,080,000
Germany	595,000
Netherlands	6,500
Switzerland	6,500
Flannels:	
United States	1,700
United Kingdom	205,000
France	15,000
Germany	7,500
Flannelettes:	
United States	8,500
United Kingdom	950,000
Germany	165,000
Netherlands	30,000
Woolens:	
United States	$35,000
United Kingdom	125,000
Germany	2,750
Coatings, vestings, and trouserings:	
United States	10,000
United Kingdom	275,000
Belgium	7,000
France	11,000
Germany	45,000
Horsehair cloth and hop cloth:	
United States	310
United Kingdom	70,000
Germany	750
Silk, or containing silk or having silk worked thereon:	
United States	3,000
United Kingdom	905,000
China	95,000
France	1,180,000
Germany	200,000
Italy	90,000
Japan	655,000
Switzerland	465,000
Socks and stockings (cotton):	
United States	15,000
United Kingdom	225,000
Germany	405,000

These classifications are somewhat different from those obtaining in the United States, but are sufficiently clear to give our manufacturers a fairly accurate idea of the kind of goods imported.

Unofficial estimates from the customs authorities indicate that for 1906 the same relative proportion was maintained, but with a substantial increase in the importations.

POPULAR PIECE GOODS.

Sheetings, shirtings, denims, drills, flannels, flannelettes, prints, and Italians all command a good sale on this market, and it is difficult to assign a satisfactory reason why any manufacturing country

desirous of expanding its export business should not cater to the requirements of the trade. It is even now of sufficient size to justify such alterations in widths, designs, lengths, or such other essential particulars as may commend themselves to experts thoroughly in touch with the situation, and as the steady growth of the market is as certain as the flight of time it would seem to be a good business policy to obtain a foothold before it is too late.

AMERICAN DENIMS.

The success of the American denims in Australia is assured simply because the widths are satisfactory to the trade, the quality excellent, and the price generally acceptable. Denims are imported principally for the purpose of manufacturing into overalls, and in this the Australian manufacturers have built up an exceedingly profitable business. Complaints are frequent, however, regarding the fluctuations in the prices of American denims during the year. The Australian overall manufacturers would be pleased if the American exporters could fix a price for at least six months and maintain it for that period without variation. English exporters will name a price and deliver denims to their customers here for the same figure for a period extending over twelve months, and this, according to the importers of the Commonwealth, is of material benefit to the overall manufacturer. He makes up his goods and fixes a price for the season, and a jump in the cost of denims laid down here causes embarrassment and not infrequently considerable loss in his transactions with the trade.

There is a growing demand for the solid indigo-blue denim, as well as the blue-and-white, and it is confidently asserted that an excellent business could be built up in solid seal-brown and solid gray denims manufactured in cheaper grades than are at present obtainable. English, German, and Dutch manufacturers are exerting themselves to the utmost to obtain a permanent foothold in the Australian denim market and have met with fair success. Germany and Holland are constantly getting closer to the American style of manufacture by copying, as nearly as possible, the weaving and other important and essential features of the denims made in the United States. In spite of all this, however, the American-made denim retains its popularity as the material best adapted for the uses of the Australian manufacturer, and it is only with a view to increasing the demand and building up a still greater permanent trade that the importers and dealers of the eastern States of the Commonwealth suggest these changes or improvements, as the case may be.

ITALIANS, SHEETINGS, LININGS, AND SHIRTINGS.

Approximately nine-tenths of the Italians imported for this market are black, and they are used principally for lining men's clothing and for dressmaking purposes. While no fault can be found with the quality of the American goods, the widths are regarded as too narrow, and because of this they are not popular with the trade. The English manufacturers turn out for this market a 27-inch, single width, and a 54-inch, double width, which cut to far better advantage than the American 30, 36, and 40 inch widths. The market for Italians is growing steadily and is well worth the careful attention of American exporters.

Gray sheetings are a staple article in Australia, for which the demand shows annually a gratifying increase. The weights required are from 2.85 to 5, but the 3, 3.25, 3.50, and up to 4 yards to the pound are the most popular. Four-yard sheetings, 46 by 52 count, are extensively used by bag makers and for covering beef carcasses, and the market is an exceptionally good one for manufacturers whose price and quality are satisfactory to the importers. The Australian bag makers, as a rule, require monthly deliveries of sheetings, and desire a guaranteed price for twelve months. This, they assert, the Manchester mills are usually willing to grant, but no such concession can be obtained on goods exported from the United States. According to the importers and dealers of the eastern part of the Commonwealth, this disinclination on the part of American exporters to guarantee a price for the year operates against the expansion of trade in these commodities, and it is suggested that if manufacturers of the United States could see their way clear to meet this demand on the part of their Australian customers business in the importation of sheetings for bags and other purposes would at once show a gratifying increase.

Gray sheetings are also used as linings for clothing, and are sold in large quantities for household purposes over the counter of every retail dry-goods store. The American sheeting, because of its quality, is unquestionably popular here, and the trade under careful handling is capable of large expansion. Repeated efforts to introduce American bleached sheetings in any considerable quantities have demonstrated the exceptional difficulty of the task. The British bleached fabrics control the market, and their position appears to be practicably unassailable.

When shirtings are required in Australia the English fabric is bought to the exclusion practically of all other makes, and while this market is an unusually important and attractive one there appears to be but little possibility of upsetting this splendidly established trade. The quality and price are entirely satisfactory to the consumers, and that tells the whole story.

DRILLS AND COTTON WASTE—DUCKS AND CRASHES.

The demand for drills is compartively small, although it is an item in the piece goods trade of Australia that American manufacturers can not afford to overlook. The great bulk of the trade is in indigo-blue drills, 28 inches wide, and from 2 to 3 yards to the pound weight. These drills are principally made into suits for engineers, firemen, etc. The 2.85 gray drill is used here largely for boat sails, and for that purpose the American goods are popular. In connection with the indigo-blue fabric it may be said that among business men generally the impression prevails that the American dyes are inferior to those used by the German manufacturers. It is important in dealing with this market that fast colors should invariably be used.

The Manchester mills supply practically all the cotton waste used in Australia and the market is an exceedingly attractive one. Their prices are approximately 15 per cent lower than their competitors, and the quality is said to be satisfactory. Inquiries as to the reasons why the demand for American cotton waste is of so little consequence elicited the information that while the prices are much higher than the English, the goods are not clean. This combination is regarded

here as too heavy a handicap to overcome, and unless these defects can be remedied it is safe to assume that the British exporters will continue indefinitely to maintain their supremacy in this branch of the cotton-products trade.

The most popular cotton ducks on the market are the 29 to 30 inches, 36 inches, and 72 inches in width in 7, 8, 9, 10, and 12 ounce weights. They are used extensively in the manufacture of tarpaulins, and for blankets for horses and cattle, and for various other purposes. The American goods are well represented, but dealers suggest that it would be well for manufacturers of the United States to introduce a 72-inch width in a cheaper quality than can now be found in Australia, and they believe the business that would result would amply justify the effort. The English awning ducks now command the market.

AMERICAN PRINTS NOT POPULAR.

The extreme heat of the summer season in Australia creates a large demand for bleached drills, ducks, and crashes used for mens' shirtings, juvenile clothing, and skirts for women. According to the dealers prices quoted for these materials by American exporters are too high to permit of successful competition with English made goods.

An enormous quantity of prints are sold annually in Australia, and this market is controlled by Great Britain. Its size is surely of sufficient importance to warrant a close investigation by an expert into the causes for the meager representation of American-made prints in the Commonwealth. The Australian market demands a print from 27 to 30 inches wide, and as goods of this description made in the United States and exported to Australia measure usually not more than 24 to 25 inches it is not difficult to understand why they do not meet the popular fancy. Then, again, dealers without exception will inform the inquirer that American prints do not possess the finish and feel which have popularized the English fabrics, and which are absolutely essential when sold over the counter.

These are the two principal objections to the prints manufactured in the United States, but importers and dealers alike have a variety of suggestions to make regarding changes or alterations, all apparently comparatively insignificant and unimportant, and yet it is not improbable that the adoption of the advice of men thoroughly in touch with the situation might eventually revolutionize the market. Any piece-goods manufacturer in the United States sufficiently interested to make a bid for the Australian print market can quite easily ascertain, either through his representatives here or from reliable importing houses, just what the market requires and just where our goods fail to meet those requirements. If with that information in hand he can see his way clear to make such changes, his chances for competing successfully with the English prints will unquestionably be materially improved.

SUGGESTIONS FOR MANUFACTURERS.

Australia has become a great exporter of butter, cheese, and beef, and in consequence is using large quantities of cloth to cover these articles of export. The cheese and butter cloths, in lengths of about 100 yards, put up in tubular form, used to cover beef carcasses, are

imported mostly from Manchester, but the present size of the market and the steadily increasing demand should call forth the determined efforts of American manufacturers to gain a share of this trade.

Australians have entered extensively into the manufacture of boots and shoes, and there is consequently a large and growing demand for material with which to line them. In this trade American goods have no representation whatever, but there is apparently no sound reason why manufacturers of the United States should not become successful competitors in the market.

Another field which it would pay the American manufacturers more carefully to cultivate is cotton gloves for women and children.

SAMPLES AND PACKING.

It would be advisable for them to export to this country a far greater variety of new patterns of oilcloth. The quality of the oilcloth made in the United States is excellent, but complaints are frequent that the designs are out of date, a defect that could be quite easily remedied at a slight expense and little trouble. The Australian consumers prefer borders on their marble shelf cloth, and in this, as well as in every other commodity, they apparently get what they want from all manufacturing countries except the United States.

Importers suggest that samples be sent out in ample time to permit of their being shown to the trade before the arrival of consignment. They also suggest that all samples should be attractively displayed in book form, and that there should be a quarter or a half yard "feeler" attached to the book. Merchants naturally desire carefully to examine the sample, and not infrequently ask for a piece of it, that comparisons may be made on the arrival of the shipment.

The packing of piece goods in bales is regarded as generally satisfactory, but it is suggested that each bale should invariably be branded "Use no hooks." This precaution, it is believed, will save considerable loss, for it is certain to prevent in a great measure the rough handling of bales at the time of loading and unloading. American exporters should also bear in mind that the commerce act of Australia provides that the country of origin must always be shown. All packages or wrappers should be branded "Made in U. S. A."

CUSTOMS RATES—CREDIT SYSTEM.

The customs duty on piece goods is 5 per cent ad valorem. In addition to this, there are wharfage charges of $1.25 a ton, cartage about 75 cents a ton, cooperage 25 cents a case or bale, and stacking (if goods when taken from the vessel are placed in sheds) 16 cents a ton. A rough estimate of the cost of laying goods down at Australian ports is approximately 15 per cent more than the actual net price at the factory.

English exporters in selling to Australian dealers frequently give from three to sixth months' credit where the buyers are regarded as financially responsible, but all transactions between American exporters and Australians are practically for cash, for it is seldom that over ten days' credit is extended. Merchants here declare that the sale of British-made goods is materially increased through the system of credits established and maintained by the English exporting houses, as it enables the Australian dealers to realize, to some extent at least,

on a consignment before it is necessary to pay for the merchandise. Another element in favor of British goods is the habit, formed by Australian dealers and strengthened by years of business association, of buying from English manufacturers. Inasmuch as their transactions have been satisfactory, they can see no valid reason why they should abandon that habit unless extraordinary inducements are offered by competing nations.

PERSONAL REPRESENTATIVES NEEDED.

Prompt deliveries are still another item in favor of the English exporters, for if found necessary shipments may be received at Australian ports every week. As against this, shipments from New York are uncertain, and as a rule are at least a month apart. Merchants also complain of the inadequate line of American samples submitted and the infrequency of the visits of accredited representatives of American manufacturers. This could easily be remedied if manufacturers of the United States would have resident agents here instructed to push the trade with the businesslike energy inseparable from success at home.

American agents representing American houses which supply up-to-date, attractive American goods can command success in Australia even against so firmly established and formidable a competitor as Great Britain. These goods, however, should conform to the requirements of the Australian trade, and all attempts to make this market a dumping ground for commodities that are unsalable at home should be at once and forever abandoned. In addition to this, the standard should invariably be maintained, and the quality of the goods shipped should never vary from the samples from which selected.

SOUTH AMERICA.

REVIEW OF THE MARKETS.

TEXTILES THE SECOND MOST VALUABLE OF THE IMPORTS.

The following brief survey of the cotton piece-goods trade in South America was prepared by Mr. Lincoln Hutchinson at the request of the Department of Commerce and Labor. More than a year was spent by Mr. Hutchinson as a special agent of the Department in the investigation of trade conditions in the countries of Central and South America, and his able and comprehensive reports attracted wide attention and were highly commended.

Taking South and Central America as a whole, textile goods form the most valuable item in the import trade, with the single exception of iron and steel manufactures. In the most thickly populated sections of the entire region the climatic conditions are such that the clothing of the people must of necessity be composed mainly of cotton goods, and these, accordingly, form the most important item of textile import. In nearly all the countries, moreover, not only is the population increasing rapidly, but the per capita purchasing power is being augmented by development of national resources and the consequent increase in the production of exportable goods. The demand for cotton manufactures is therefore not only large and increasing, but is likely to continue to grow for many years to come.

DEMAND AND SUPPLY.

This growing demand is being met in two ways—by importation from abroad and by home manufacture. Two of the countries, Brazil and Peru, have large supplies of native-grown raw cotton, and under the stimulus of high protective duties home manufacture has developed with sufficient success to make it already a factor in determining the amount of imports. One or two other countries, notably Argentina and Uruguay, have followed suit, and have endeavored to stimulate home manufacture as well as the production of home-grown raw material by high protective duties and other means, but they have met with far less success, partly through scarcity of labor for raising the raw material under climatic conditions which are much less favorable than in Brazil or Peru. They are further handicapped by the lack of abundant fuel or water power for the running of their factories. Their protcetion of the industry, therefore, rests upon an unnatural basis, and it is not likely that it will result in any very serious competition with imported goods.

On the whole, then, it would seem that in spite of the growth of home manufactures in certain parts of Spanish America, the demand for foreign cottons will continue to increase with the growth of population and the rising purchasing power of the people. South America

already furnishes a market for some $80,000,000 worth of American and European cottons, and it is not unlikely that the next few years will see the demand passing the $100,000,000 mark. The market is therefore well worth competing for.

CHARACTER OF THE TRADE.

The demand is for three or four chief general classes of goods: Finer and more expensive goods for the use of the wealthier classes of society; plain unbleached goods for the making of clothing, flour sacks, etc.; dyed goods, made either from dyed yarn or dyed after weaving; and cheap prints, the demand for which is rapidly increasing. Fine goods of any sort are not manufactured in the native mills, their production being confined to the coarser, cheaper grades. Cheap, plain, unbleached goods, such as "domestics," and dyed goods, in immense variety of pattern, make up the bulk of the trade, whether measured by value or by quantity; but the trade in cheap prints, though still relatively small, has made enormous advances in the past few years. A very successful trade in "splits" is being done in all the cheap grades of goods. So far as native competition is successful it affects only the imports of the cheapest and coarsest grades of plain and dyed goods. The native spinning is all done by "ring" machines, and the "counts" in weaving rarely run above 240. The heavy "sizing" in the native mills (both before and after weaving) produces a cloth that can not be very successfully "printed."

MARKET FOR DYED AND PRINTED CLOTHS.

Nearly everywhere in South America there is evidence that the major part of the increase in demand in recent years has been in dyed goods and in prints. The most accessible field, therefore, for manufacturers such as those of the United States, seeking to gain a foothold in a market which is already largely occupied by their rivals, lies in the direction of these goods, for which there is expanding demand. Trade expansion along this line would not preclude expansion in plain bleached or unbleached goods as well; it would merely seem to be the direction in which first advances might best be made. A firm foothold once established could then easily be strengthened by efforts along other lines.

The opinion is generally prevalent among South American importers that the United States is not getting as large a share of this trade as the excellence of American goods would warrant. This statement is especially applicable to the print trade, and the reasons generally assigned for the backwardness of the United States is that our exporters have not yet gone after the business in the same persistent, thoroughgoing fashion as have their European rivals.

The chief imports of cottons generally are of English and German origin, the former showing a marked tendency to decrease in recent years, while the latter have made equally notable advances. It is to German rather than English methods, therefore, that American exporters should look for their model.

The Germans owe their success mainly to the fact that they have gone into the business on a large scale, at great expense, and with a determination to win. In the first place they carry on what may be called an international producing business. The most successful German manufacturer is not content to operate and sell the products of his own German factory alone, but has purchased or by contract gained control of the product of factories in other countries as well. There are instances in which a German factory thus controls the output of factories in Italy, Spain, England, France, etc. By this method the German producer has increased the variety of goods which he is able to offer to the South American market, and to maintain his hold on the sales of the particular classes of goods in the production of which his own home factory has special advantages.

CAUSES FOR GERMAN SUCCESS.

In the second place, the German exporter almost invariably places the selling of his product in the hands of a German house in South America, a house more or less directly connected with the home concern and pecuniarily interested in its welfare. The home concern, or the connected house in South America, has in its employ and constantly in the field expert travelers, agents, or salesmen who make detailed and frequent reports on the peculiar demands, not merely in any one country as a whole, but also in the various localities within a single country. These agents are technical experts as well as salesmen, and are able to figure accurately on the cost of making changes of pattern, etc., in response to varying demand, and to quote figures either on the spot or with a minimum of delay. Through their familiarity with the language and their close and frequent contact with the merchants, and even with the consuming public, they are able to form reliable judgments as to the standing of importing and retail firms and to know at once what changes of fashion have taken place or are likely to occur in the near future. They are thus able to arrange safely for the granting of the usual six, ten, or twelve months' credit, or for selling on open account, as is not infrequently done, and are able to meet promptly variations in demand.

DELINQUENCY OF AMERICANS.

As a rule American exporters do none of these things. They attempt to find a market for the output of their own factories only; they sell to foreign houses in South America; their agents are frequently mere salesmen, without much technical knowledge of the goods they are selling, and they find themselves unable, through lack of information, to grant credit. They will never gain a lasting or predominant hold in the market until they adopt the broader and more costly methods of their European competitors.

Back of all this, and the real cause of it, is a still more fundamental difficulty—the treatment on the part of American exporters of the South American market as a convenient dumping ground in times of slack home market. So long as this attitude is at all general it will be impossible for South American importers to persuade the shippers of the United States to give the proper attention to the minutiæ of

the trade, such as careful packing of the goods, the requisite changes in pattern or sizes, the details of the South American customs requirments in the matter of invoicing, marking, etc., or to adopt the policy of strict adherence to contracts or trade connections, which is so essential as a basis upon which to build a really great and lasting commerce.

FIRST STEP TOWARD EXPANSION.

Too many of our producers sell to the South American market only when they have surplus stock to dispose of, and at such times they make all sorts of concessions, even to the selling of the goods at prices below the actual cost of production. The first step toward expansion of our trade is, therefore, to convince our exporters that there is a trade awaiting development which is valuable in itself and capable of yielding good profits if properly handled. Under present arrangements, with our exporters sending out inferior agents and selling to foreign middlemen, who have no direct interest in the home concern and, therefore, use the business mainly as a source of profit to themselves, there can not be much remuneration to the exporter on such business as is carried on. The middleman's profit, as well as many other items of expense, could be reduced to the benefit of the manufacturer or shipper if the trade was taken up seriously as a permanent enterprise.

The American exporter, then, needs first of all to be convinced that there would be a profit for him in the building up of a permanent trade; and this can be done in only one way. Agents or commissioners must be sent out, thoroughly familiar with every detail of the manufacture and trade at home; men who know costs, prices, and customary profits, and all the conditions under which the business is carried on. Such men, sent out as the personal agents of the manufacturers themselves, would be the best possible means of bringing the necessary changes of method; but in the absence of the manufacturer's own initiative in the matter a Government agent representing the interests of the nation's manufacturers as a whole could perform much the same service, though it might be somewhat more difficult to persuade the manufacturer to act on his advice.

ENCOURAGEMENT FOR UNITED STATES SHIPPERS.

The recent history of Spanish America's import trade in cotton goods is by no means discouraging to shippers of the United States, in spite of the difficulties which have just been outlined. Our trade is small, it is true, but the advances we have made in certain lines and in certain countries, especially those nearest us, indicate that there are no insuperable obstacles to our gaining a much larger share of the market. Statistical information is abundantly reenforced by the personal testimony of importers and agents in Spanish America itself. In my recent journey I met scarcely a man interested in the textile trade who did not speak highly of American goods, and assert confidently that if our exporters would change their methods along the lines indicated above and really treat the market as a permanently desirable acquisition, they could undersell Europe in many varieties of goods and do a very profitable business.

FABRICS FOR BRAZIL.

HIGH-TARIFF MARKET, YET BRITISH PIECE GOODS FIND STEADY SALE—SOME SUGGESTIONS FOR AMERICAN MANUFACTURERS.

Consul-General George E. Anderson reports that the United States has been sending very little cotton manufactures to Brazil. He has made a study of the trade there in cotton fabrics, and, along with pertinent facts and observations, submits a number of samples covering a variety of muslins, sheetings, prints, cotton ducks, etc., with price and sales conditions. Mr. Anderson makes the following report from Rio de Janeiro, which was published in Daily Consular and Trade Reports (No. 2734) for December 4, 1906.

The one-time trade of the United States with Brazil in certain fabrics has practically disappeared, the entire cotton-cloth exports to this country being only $745,962 and $590,007, respectively, for the fiscal years 1905 and 1906 for a population of 17,000,000 people. Of the cotton fabrics imported Great Britain is furnishing the bulk. Some fabrics of American manufacture, like overall materials, still have a name in Brazilian markets that stands in spite of time, competition, and cheap substitutes, and only a bettering of general tariff conditions in Brazil is necessary to revive American trade in such lines. In some lines of American goods there is apparently little chance of doing anything. English competitors have built up a special trade, and so far have been able to keep it. American manufacturers continue to put more cotton and less filling in their goods, and do not sell so cheaply. In Brazil this policy works against American goods chiefly in that it especially increases the duty upon them. A difference in the weight of a thread, or in the number of threads, may mean different customs classification at a much higher rate of duty, and in Brazil at the present time the matter of the customs duty is the real problem in the cotton trade.

THE TARIFF DIFFICULTY.

A general lowering of the duties upon cotton manufactures in Brazil would work more to the advantage of the United States than to that of any other nation. The conditions upon which foreign goods are admitted in Brazil are so onerous and vary so greatly that it is difficult to induce the American cotton manufacturer to suit his products to such requirements, when much of the time there is no assurance when an order for goods is given that the goods will be entered in Brazil under the conditions they are manufactured to meet.

The cotton-goods importations of Brazil have been running from $15,000,000 to $16,000,000 per annum for several years past. This amounts to something like imports on an average of $1 American gold per head of the population. The consumption is much larger, but it would be immensely larger if goods of the medium to common grades could be had at reasonable prices. Prices for cotton goods are higher than for any other staple commodity, due to the high tariff and to the high cost of local manufacture from crude methods of producing and handling cotton and manipulating it in the mills.

The industry is drained at every point, and as the cost of producing cotton cloth is increased the rates of duty for the protection of the industry are raised until the prices of many fabrics are raised beyond the consumption point. The amount of middle grade goods sold is small. The better grades and fine fabrics are imported because the wealthy classes will have them at any cost, and they can not be made at home. The cheaper grades of goods are made in Brazil. In 1903 and 1904 hosiery imports increased about 4 per cent, lace goods about 15 per cent, and better grades of "piece goods unenumerated" about 50 per cent, while at the same time there was a decrease in the imports of bleached piece goods of 12 per cent, in printed goods of 18 per cent, and in dyed goods of about 3 per cent.

INCREASING COTTON PRODUCTION.

Cotton is grown successfully throughout the coast country mostly as a perennial, with little attention, on small patches around native huts. The dealers buy the small quantities and sell it to middlemen, who in turn sell it to consumers. Where there are so many profits the producer gets but little for his cotton, while the manufacturers pay high prices. Most of the cotton is grown in Pernambuco and Bahia; most of the mills are in Rio de Janeiro and Sao Paulo. Getting the staple to market by human or ox transportation in a country devoid of modern roads, followed by high railroad charges, lighterage to vessels, coast transportation, more lighterage to land it, costly handling in custom-house, import charges of one sort or another, customs brokerage, the expense of dispatching and incidentals, and then the cotton is merely ready to be distributed to mills which may be miles from any railroad or water transportation. About the largest mill in Rio de Janeiro is 6 miles from where cotton can be landed for it by any other means than vehicles. The vehicles used are small, the cotton is poorly baled and bulky, and the cost of transporting the raw material to these mills is enormous. This one charge added to the cost of production of any mill in the United States would doubtless wipe out all its profits. The mills vary greatly in equipment, the majority of them having English machinery, largely because most of them originally were established with English capital. Power is costly, coal being imported for all purposes. Labor is generally inefficient and comparatively costly. In short, there is not a single element of the cost of producing cotton cloth which favors the industry in Brazil as compared with other producing countries.

That the cost of the cotton to most of the cotton-manufacturing interests of Brazil is not due to the actual cost of producing the fiber is amply demonstrated by the fact that Brazil exported in 1905 a total of 52,979,857 pounds of cotton, valued, according to the customs returns, at $5,788,570. The probabilities are that this cotton was delivered in foreign countries at a lower cost than most of the crop was delivered in Brazilian cities. It may be worth while to note also that the exports of last year represent an increase of almost exactly 40 per cent over those of the year before. Brazil, under proper conditions, would have a wonderful future as a cotton-producing nation. The fiber grown is comparatively short and coarse, but it is mostly from plants which are not cultivated.

That the Brazilian cotton-milling business is now profitable goes without saying so long as import duties range from about 190 to 360 per cent effective charges upon the import valuation of goods. That the present course of things is too profitable to the cotton-mill owners at the expense of the consuming public is one of the complaints of the importers. The Commercial Association of Rio de Janeiro, in its statement to the Brazilian Congress, lays particular stress upon this point and reviews the financial standing of the cotton mills in the capital district (corresponding to the District of Columbia in the United States), calling particular attention to the fact that the cotton mills of the country are conducting their business in a more or less secret manner and hiding their profits, lest the true nature of the effect of the tariff upon the cotton industry becomes apparent.

PROFITABLE MILL STOCK.

It is reported that a cotton factory at Maceio, located where it can secure raw materials at its doors, paid a dividend of 45 per cent upon its stock last year, but most of the factories do not conduct their finances in so open a manner. A recent statement covering the establishments in Rio de Janeiro affords the following figures, a milreis being worth 30 cents American currency:

Name of company.	Capital.	Reserve fund.	Market quotation of stock.
	Milreis.	*Milreis.*	*Milreis.*
Alliança	9,000,000	3,332,967	260
America Fabril	2,600,000	3,859,692	250
Brazil Industrial	6,000,000	1,232,202	210
Carioca	3,600,000	5,000,000	275
Cometa	2,400,000		200
Confiança Industrial	9,000,000		
Corcovado	4,500,000	1,096,944	200
Manufactura Fluminense	3,000,000	509,000	200
Progresso Industrial	9,000,000	3,079,000	260

Of these companies it seems that the Manufactura Fluminense, with a comparatively small reserve, has shares quoted at twice their original or par value of 100 milreis. The Confiança Industrial has converted its reserve fund into new capital, increasing the latter from 6,000,000 to 9,000,000 milreis, but its shares are still worth double their par value. This is true of the Cometa, the Progresso Industrial, and some others. The total capital of the companies named, about 60,000,000 milreis, is now said to represent about half the original capital, the rest being earnings of the respective concerns. At present these companies have reserve funds averaging nearly 25 per cent of their present nominal capital. Practically none of the above companies (the Cometa excepted) allow the public to know what their dividends are, while all of them are given stock quotations of at least 200 per cent.

THE TARIFF SITUATION.

This present prosperity is altogether due to the tariff situation, and inasmuch as the latter is commencing to be somewhat doubtful, and radical changes may occur at any time, the possible position of such

establishments under changed conditions is to be regarded at all times. Under normal conditions the Brazilian demand for cotton goods would be that of any other reasonably up-to-date country. The social status of the people ranges from that of semiwild Indian tribes to some of the most luxurious. Ordinarily there would be a large demand for light-weight fabrics suitable for use in a hot climate, and under normal conditions the common people would use enormous quantities of cheap printed and dyed goods of the grades that retail in the United States at 5 to 15 cents per yard. The wealthier classes would call for the higher grades of goods which are worn by the same classes in other tropical countries. The effect of the extremely high import duties, however, has been to shut out practically all imports of medium-grade goods, and Brazilian cotton imports at the present time consist mostly of high-grade goods—lace and insertion alone make up about 8 per cent of the total imports—or very cheap goods. The Brazilian mills are manufacturing a good grade of what are called the cheap grades of goods and poor grades of what are called the good grades of goods. The bulk are of coarse quality, rather heavily "weighted," and sized, and correspond to goods retailed in the United States at something like 5 cents a yard. They sell here at substantially 9 to 15 cents gold per yard. Prices upon the better grades of goods are even higher in comparison. A certain grade of muslin which was bought in a New York store at about 15 cents per yard was duplicated here at the rate of over 50 cents gold. Cloth substantially the same but differing in technical detail can be had a little less. The difference in the two grades is not in actual quality but in the fact that the technical construction of one enables it to be brought in under one classification in the tariff act from which the other is shut by its particular technical desciption.

AMERICAN SHEETINGS MUST CONFORM TO MARKET.

The merchants of Brazil generally take the risk of dealing with their own tariff and with freight rates of all varieties, and prices f. o. b. mills are probably all that American manufacturers could afford to submit. With this in view I have endeavored to secure what data have been possible from jobbers in cotton goods, and while some of these dealers have been disposed to withhold information that had practical value for fear there could or would be a break in their trade as a result of American enterprise, other dealers have appreciated the fact that American mills may offer them advantages and have done their best to present the trade as it actually is. I have had a number of inquiries from the United States concerning opportunities for the sale of American sheetings. In this line of goods I find that there is little opportunity of doing anything unless the goods are manufactured for this market. Goods now most popular with the retailers seem to have less real merit than most American goods at the same mill price, but they come in under a lower tariff.

I send to the Bureau of Manufactures a series of samples of sheetings, marked "Exhibit A," which represent goods now being imported and which are popular with dealers. These goods come in widths marked by quarter meters, but the price is made in yards.

The 6/4 width (six-fourths or one and one-half meters wide) is priced at the mill at $6\frac{7}{16}$d. (pence = 2 cents), the 7/4 at $7\frac{1}{8}$d., the 8/4 at $7\frac{15}{16}$d., the 9/4 at $9\frac{1}{16}$d., and the 10/4 at $10\frac{5}{8}$d. An inferior grade of the same sort of goods comes in inch widths, priced at the mill as follows: 63-inch, per yard, $7\frac{1}{8}$d.; 72-inch, at $8\frac{5}{8}$d.; 80-inch, at $9\frac{3}{4}$d., and the 90-inch at $11\frac{3}{8}$d. To be compared with these I inclose certain samples, marked "Exhibit C," which were given me by a Rio de Janeiro jobber. They were received by him several weeks ago from a New York jobbing house in connection with a circular letter offering the goods subject to acceptance and several other conditions. No goods were bought under this offer—not because the goods were not offered at a reasonable price, quality and all considered, but because the goods were not of a sort common in this market, and whose sale value therefore was doubtful; because English goods more suitable for the market were offered at similar prices, and because the terms offered were not certain, and in so far as they were certain they were not as favorable as the customary terms with English houses. This matter of terms I shall consider in a subsequent paragraph.

PHILADELPHIA MUSLINS HOLD ESTABLISHED TRADE.

I also send two samples of cloth of this general variety which the dealer furnishing them thought could be furnished from the United States at the present time to advantage. The first, marked "Exhibit D," is a sample of English muslin. It is invoiced at 7s. $6\frac{1}{2}$d. per piece of 20 meters. This fabric weighs at the rate of 189 kilos, 800 grams for 100 pieces, or 104 grams to the square meter, 37 threads to the square centimeter. It is 36 inches wide. "Exhibit E" is an English sheeting 32 inches wide invoiced at 4s. and 9d. per piece of 20 meters, weight 1.744 kilos (3.8368 pounds) per piece. A Rio de Janeiro jobber believes that American mills at the present time can offer better goods of this sort for less money, i. e., goods which will come in under the same classification and at the same time have more cotton in them. What the United States really can do in the line of fine muslins and similar goods is demonstrated from the fact that a Rio de Janeiro merchant attended the Centennial Exposition in the United States in 1876 and there saw and admired a muslin to such an extent that he introduced it in his trade. This muslin is to-day imported in varying amounts by two Rio de Janeiro firms, its popularity never failing during the more than thirty years it has been coming here. The goods are the "Centennial" grade (Washington or President head) Anchor brand, made by a Philadelphia concern.

HIGH REPUTATION OF AMERICAN OVERALL CLOTH.

In the way of prints Rio merchants are practically all of the opinion that nothing can be done at the present time by American manufacturers. I think, however, that this would not be the case if American manufacturers would cater to this market as English factories do. Only the best grades of prints are imported. There is no reason why American prints should not come as well as any others, except the mere fact that they do not. American goods face no prejudice whatever apparently. Their merit in some cases is recognized as above

all others. For instance, in the line of overall materials the American goods are ahead of all others and beyond competition, weight for weight and price for price. Brazilian-made overall materials lack the attractive dye, the peculiar smell which goes with American goods, and experienced buyers in retail stores hunt for that odor. American goods of this class would come into Brazil in large quantities if the tariff rates could be arranged more fairly, especially if American prices were brought down a little. American overall goods will bring 50 reis a meter, about 1¼ cents a yard, more than similar goods from any other source, and this upon the basis of sheer merit. Since this is true of overall goods, I see no reason why it should not be true of every other item in the long cotton schedule of Brazilian imports.

HIGH PRICES OF COTTON DUCK.

Probably no better demonstration of the position of American goods of some sorts and of the operation of the present tariff in Brazil can be had than that offered by a variety of goods which seems to be a light-weight duck or cotton cheviot which is used extensively in Brazil for the manufacture of summer clothing. These goods are figured like summer woolen fabrics and resemble flannels to some extent when viewed from a distance. The United States sent considerable quantities of these goods to Brazil a few years ago, and the trade would have continued to the present time but for the Brazilian tariff. When trade in this fabric was at its height, the Brazilian mills commenced to imitate American goods, and especially American patterns, and offered their goods at comparatively low prices. As the tariff was increased from time to time, however, the price was raised. For a long time it remained at 900 reis, or about 30 cents, a yard. Then it went to 1 milreis, about 33 cents, and there it stays for the simple reason that American cloth would be much preferred to it at 1 milreis 100 reis, or about 36 cents. As it is, American cloth could probably be sent here at enough of a reduction in the price to force the market somewhat.

BRAZILIAN IMITATIONS.

Comparing the goods is ample enough demonstration of the manner in which the Brazilian goods have been made in imitation of the American fabrics. Indeed, there is no concealment of this fact. For instance, a sample, "Exhibit F," is a Brazilian cotton suiting made in imitation of an exclusively American pattern of such goods. It comes in widths of about 28 inches, and the price at the mill in Sao Paulo is 720 reis, or about 24 cents, per meter. Another fabric, "Exhibit G," is made in imitation of an American pattern quite common here some time ago. It comes in widths of 28 inches, and costs 25.3 cents a meter at the mill near Rio de Janeiro. "Exhibit H," another fabric made by the American Fabric Company, of Rio de Janeiro, also copies an exclusively American pattern. A 10 per cent reduction in the price of the American goods would get them into this market again. The American goods are of better grade than the Brazilian imitations. The American weave is regular, with threads of even thickness and uniform in the weave. The

Brazilian weave is, for instance, with a large and small thread alternating, giving the fabric the appearance of a body it does not have and appearing to be of a weight it does not possess. The American goods are more durably colored—in short, they are better goods, and I have no doubt but that they would be furnished for enough less money to bring them into the country again. [illegible] "Exhibit K" is a book of samples of the [illegible] Brazilian mills are making in imitation of American goods which have been driven out of the market.

EXTENSIVE MARKET [illegible]

One line of goods in which [illegible] mills can secure business even at the present time [illegible] of the cheaper grades, which are [illegible] ing. There is a demand for the [illegible] which seems to be out of the [illegible] from figured goods [illegible] schedule. There is yet [illegible] upon them in favor of the plain goods [illegible] are more popular. [illegible] color at all. I [illegible] "Exhibit J," the latter [illegible] samples thus submitted are [illegible] facture rather generally [illegible] a complete line in any [illegible]

What is needed [illegible] can cotton interests [illegible] has no other interest in the [illegible] much American [illegible] ufacture in the United States [illegible] afford, to put such a [illegible] bination or association [illegible] ing the expense and the [illegible] ticable from the American [illegible] be successful from the [illegible]

WELL-TRIED [illegible]

American manufacturers [illegible] fact that if they are [illegible] will have to be [illegible] are sold. This is the [illegible] but it does not [illegible] they do not represent [illegible] manufacturer [illegible] Practically all of the [illegible] herein as from [illegible] but the agreement is that [illegible] the invoice at the price [illegible] shipped.

By this method the buyer [illegible] which enable him to [illegible] in his business, and at the same [illegible]

all others. For instance, in the line of overall materials the American goods are ahead of all others and beyond competition, weight for weight and price for price. Brazilian-made overall materials lack the attractive dye, the peculiar smell which goes with American goods, and experienced buyers in retail stores hunt for that odor. American goods of this class would come into Brazil in large quantities if the tariff rates could be arranged more fairly, especially if American prices were brought down a little. American overall goods will bring 50 reis a meter, about 1¼ cents a yard, more than similar goods from any other source, and this upon the basis of sheer merit. Since this is true of overall goods, I see no reason why it should not be true of every other item in the long cotton schedule of Brazilian imports.

HIGH PRICES OF COTTON DUCK.

Probably no better demonstration of the position of American goods of some sorts and of the operation of the present tariff in Brazil can be had than that offered by a variety of goods which seems to be a light-weight duck or cotton cheviot which is used extensively in Brazil for the manufacture of summer clothing. These goods are figured like summer woolen fabrics and resemble flannels to some extent when viewed from a distance. The United States sent considerable quantities of these goods to Brazil a few years ago, and the trade would have continued to the present time but for the Brazilian tariff. When trade in this fabric was at its height, the Brazilian mills commenced to imitate American goods, and especially American patterns, and offered their goods at comparatively low prices. As the tariff was increased from time to time, however, the price was raised. For a long time it remained at 900 reis, or about 30 cents, a yard. Then it went to 1 milreis, about 33 cents, and there it stays for the simple reason that American cloth would be much preferred to it at 1 milreis 100 reis, or about 36 cents. As it is, American cloth could probably be sent here at enough of a reduction in the price to force the market somewhat.

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Brazilian weave is, for instance, with a large and small thread alternating, giving the fabric the appearance of a body it does not have and appearing to be of a weight it does not possess. The American goods are more durably colored—in short, they are better goods, and I have no doubt but that they could be furnished for enough less money to bring them into the country again under proper conditions. "Exhibit K" is a book of samples of the cotton-duck suitings which Brazilian mills are making in imitation of American goods which have been driven out of the market.

EXTENSIVE MARKET FOR BLACK GOODS.

One line of goods in which dealers here seem to think that American mills can secure business even at the present time is in black muslins of the cheaper grades, which are used in Brazil extensively for mourning. There is a demand for black goods of all sorts in this country, which seems to be out of the ordinary. Plain black goods as distinct from figured goods come in to better advantage under the tariff schedule. There is 46 per cent difference in the respective duties upon them in favor of the plain goods. Then, too, the plain goods are more popular. When in mourning the Brazilian people use no color at all. I send two samples of such goods, "Exhibit I" and "Exhibit J," the latter of which cost $2\frac{1}{16}$d. at an English mill. The samples thus submitted are scattered over the range of cotton manufacture rather generally, and can in no way be taken as representing a complete line in any one sort of goods.

What is needed is a direct American representative here of American cotton interests who is an employee of American concerns and has no other interest in the business situation here than to sell as much American cotton as possible. If any one interest in cotton manufacture in the United States can not afford, or thinks it can not afford, to put such a representative in the field permanently, a combination or association ought to be organized for that purpose, dividing the expense and the business. Such a scheme ought to be practicable from the American end of the line, and I am sure it would be successful from the foreign end.

WELL-PROTECTED SALES BEARING INTEREST.

American manufacturers seem to be commencing to appreciate the fact that if they are to increase their foreign trade materially there will have to be some concessions in the way of terms upon which goods are sold. This is the case in Brazil and South America generally, but it does not necessarily follow that such terms are loose or that they do not represent as much profit in the long run as American manufacturers are accustomed to secure upon cash transactions. Practically all of the goods upon which prices have been quoted herein as from English mills were sold upon a six-months basis, but the agreement is that interest is to be paid upon the amount of the invoice at the rate of 6 per cent from the date the goods are shipped.

By this method the buyer is enabled to secure the goods upon terms which enable him to avoid the necessity of investing too much money in his business, and at the same time the mills secure interest returns

upon the money represented by their products before the latter are paid for. On the other hand the buyer has the constant inducement to pay for the goods as soon as he conveniently can, since to do so is to stop interest. As a rule the jobbers here grant similar terms to retailers, and as soon as goods are sold the paper of the retailer is made to cover that of the jobber with the mill. The British manufacturers are accustomed to transact the financial end of their sales through the several British banks doing business in Brazil, drawing against the papers subject to acceptance and later to remittance through the banks holding the drafts. In this method the presence of British and other European banks here gives them an advantage over American manufacturers with no American bank, but I have no doubt but that any of the banks here would be glad to have similar American business if they could get it.

EXTENSIVE BUSINESS BASIS FOR AMERICAN BANK.

As to credits, this advantage of having British banks in Brazil has enabled British manufacturers to extend them more freely and safely; the same may be said of German banks and German manufacturers and other banks and other national interests. It is remarkable that there has been no serious consideration of the establishment of an American banking house in Brazil or this portion of South America in spite of the fact that by reason of coffee and rubber imports alone the United States indirectly remits to Brazil something like $75,000,000 annually. However, the fact that one of the leading American commercial agencies has practically established a branch in Rio de Janeiro and will soon have it in working order upon a comprehensive and satisfactory basis offers some means of avoiding many of the difficulties heretofore experienced by American manufacturers in doing business here, and it seems safe to say that American houses having opportunity to sell goods in Brazil will from this time forward at least be in a position to properly protect themselves; and being in such position the terms offered prospective customers should be more in keeping with those now offered by their competitors in Brazilian trade.

Brazil will continue to manufacture a large proportion of its cotton-goods supply, but it will of necessity continue to import some lines of cotton goods for many years to come. The raw material produced in Brazil is not adaptable to many purposes. For instance, some knit goods are made of it and are sold here at prices which would secure the very best goods in the United States, but the Brazilian products have a roughness and hardness which render them unacceptable to anyone who can afford the imported articles. Germany and Switzerland are now sending such goods, but the United States, with its splendidly adaptable staple, ought to be sending them. In spite of tariff and other unfavorable conditions, there is cotton trade to be had in Brazil now, and there will be a largely increasing trade in foreign manufactures of high merit in the future.

BRITISH COTTON INDUSTRY.

LANCASHIRE A GREAT MANUFACTURING CENTER.

GREAT VOLUME OF PRODUCTION AND EXTENT OF EXPORTATION.

The county of Lancashire is the seat of the cotton industry of Great Britain, which is perhaps the greatest of all the industries of the United Kingdom. Mr. William Whitman, jr., was assigned to that field to inquire into British methods of manufacture, character of fabrics produced, extent of annual output, location and extent of principal foreign markets, etc. A number of reports covering this general investigation were published in Daily Consular and Trade Reports, from which the following pages were taken. Writing from Manchester in October, 1906, Mr. Whitman says:

Lancashire is the greatest cotton manufacturing area in the world, and Manchester is its business center. It will be useless to go over details already well known to American cotton manufacturers beyond alluding to the enormous increase in spindles in the area during the last three years. In that time approximately 8,000,000 new spindles have been added to the productive capacity of the area, and the growth in the number of new looms has about kept pace with the increased spindleage. Nor is the end yet in sight. Not less than six large new spinning mills are now being quietly organized in the Oldham district. While the British home trade in manufactured cottons is a large one, it is small when compared with her gigantic export trade. Returns just published for the nine months ended September 30 give 4,748,714,700 yards as the outgo of cotton cloth, compared with 4,603,148,100 yards for the corresponding nine months of last year. I give these figures to show our relative insignificance as exporters of manufactured cottons, and I have mentioned the great development in mill building to emphasize the fact that when these additional spindles and looms are all in operation competition for trade in foreign markets will be greatly intensified.

STANDARD EXPORT CLOTHS.

There are many standard varieties of cloths exported from Great Britain in large quantities which are not made in the United States, but which can be produced there without material changes in the equipment or internal organization of most of our mills now making staple goods for the American and Chinese markets. An example of one class of such fabrics is T cloths, of which I am sending two full-piece samples to the Bureau of Manufactures. They are sold in South and Central America, China, Japan, India, and to some extent in the Balkan States. They are heavily sized goods and always measure 24 yards to the piece, measured "long stick" (36½ inches to the yard), are made from coarse yarns, and vary in weight from 4 to 9 pounds to the piece.

Export print cloths embrace but a limited range in the gray, while the printed patterns cover a very large number of styles. They are shipped chiefly to Latin America, the Levant, British East Indies, the Orient, and in some quantity to every nonmanufacturing country in the world.

Gray shirtings are an important sort of export goods, being from medium to heavily sized; some of these carry as much as 159 per cent of size in the warp. They are 37½ yards, long stick, to the piece, but vary in width from 38 to 59 inches, and in sley and pick from 48 by 48 to 76 by 72. They are made to weight, thus: A 39-inch 64 by 60 must weigh 8¼ pounds, a 45-inch 9 pounds, and a 50-inch wide piece 10 pounds. The principal purchasing countries are India, China, Japan, Turkey, and the Levant. A better quality is made and bleached for the same markets and Egypt. Upon examination of the samples forwarded to the Bureau of Manufactures, American cotton manufacturers will at once see that the goods described in this report can be made in many of our mills as at present arranged, and with markets for the same fabrics in so many countries the development of a trade in such merchandise would balance the industry and prevent a repetition of the severe depression which overtook the trade during the Boxer troubles in China.

WAGES PAID WEAVERS.

With a few unimportant exceptions the wages of English cotton weavers are based upon a uniform list of prices. This list covers practically every conceivable sort of cloth, and is based on a standard which I give in terms of English currency. Pence may be for comparative purposes treated as 2 cents each American. "Twist" is the English term for "warp."

The standard upon which this list is based is an ordinarily made loom, 45 inches in the reed space, measured from the filling fork grate on one side to the back board on the other, weaving cloth as follows:

Width: 39, 40, or 41 inches.

Reed (Sley): 60-reed, 2 ends in one dent, or 60 ends per inch.

Picks: 15 picks per quarter inch, as ascertained by arithmetical calculation, with 1½ per cent added for contraction.

Length of piece: 100 yards of 36 inches measured on the counter, any length of lap other than 36 inches to be paid in proportion.

Warp: 28's or any finer numbers.

Weft: 31's to 100's, both inclusive.

Price: 30 pence per piece, or 2 pence per pick.

WIDTH OF LOOMS.

A 45-inch reed space loom being taken as the standard, 1½ per cent shall be added for each inch up to and including 51 inches; 2 per cent from 51 to 56 inches; 2½ per cent from 56 to 64 inches; and 3 per cent from 64 to 72 inches; 1¼ per cent shall be deducted for each inch from 45 to 37 inches, inclusive, and 1 per cent from 37 to 24 inches, below which no further deduction shall be made. For any fraction of an inch up to the half no addition or deduction shall be made, but if over the half the same shall be paid as if it were a full inch; all additions or deductions under this clause to be added to or taken from the price of the standard loom, 45 inches.

All looms shall be allowed to within 4 inches of the reed space, but whenever the difference between the width of cloth and the reed space is less than 4 inches, it shall be paid as if the loom were 1 inch broader, and if less than 3 inches, as if it were 2½ inches broader.

When the cloth is from 7 to 15 inches, inclusive, narrower than the reed space of the loom in which it is being woven, a deduction in accordance with the following tables shall be made. No further deductions shall be made when cloth is more than 15 inches narrower than the reed space or when cloth is narrower than 18 inches. Fractions of an inch are not to be recognized under this clause.

For example, a 32¼-inch cloth should be reckoned as 33, 40¼ as 41, and so on with all other widths.

A 60-reed being taken as the standard, three-fourths per cent shall be deducted for every two ends or counts of reed from 60 to 50, but no deduction shall be made below 50. For every two ends or counts of reed from 60 to 68, three-fourths per cent shall be added; from 68 to 100, 1 per cent; from 100 to 110, 1½ per cent, and from 110 to 132, 2 per cent. All additions or deductions under this clause to be added to or taken from the price of the standard, 60-reed.

Cloths woven with one end in a dent to be paid three-quarters of the reed; thus an 80-reed, one end in a dent, would be paid for as a 60-reed.

Low: An addition of 1 per cent shall be made for each pick or fraction of a pick below 11, thus:

Below 11 per one-fourth inch, down to and including 10, 1 per cent;
Beloy 10 per one-fourth inch, down to and including 9, 2 per cent;
Below 9 per one-fourth inch, down to and including 8, 3 per cent;
Below 8 per one-fourth inch, down to and including 7, 4 per cent,

and so on, adding 1 per cent for each pick or fraction thereof.

High: An addition of 1 per cent per pick shall be made whenever they exceed the following, if using

Weft below 26's when picks exceed 16 per one-fourth inch;
Weft, 26's to 39's, inclusive, when picks exceed 18 per one-fourth inch;
Weft, 40's and above, when picks exceed 20 per one-fourth inch.

In making additions for high picks any fraction of a pick less than the half shall not have any allowance; exactly the half shall have one-half per cent added; any fraction over the half shall have the full 1 per cent added.

The standard being 28's or finer, the following additions shall be made when coarser twist or warp yarn is woven in the following reeds:

Below 28's to 20's in 64 to 67 reed, inclusive, 1 per cent;
68 to 71 reed, inclusive, 2 per cent;
72 to 75 reed, inclusive, 3 per cent;
Below 20's to 14's in 56 to 59 reed, inclusive, 1 per cent:
60 to 63 reed, inclusive, 2 per cent;
64 to 67 reed, inclusive, 3 per cent.

and so on at the same rate. When twist (warp) is woven in coarser reeds no addition shall be made. The above prices are for single and two-ply yarns. When three-ply yarns are woven one end in a dent, one-half of the above percentages to be added.

WEFT OR FILLING.

Ordinary pin mule cops: The standard being 31's to 100's, both inclusive, shall be reckoned equal. Above 100's 1 per cent shall be added for every 10 hanks or fraction thereof. In lower numbers than 31's the following additions shall be made:

For 30's, add 1 per cent.
For 29's, 28's, add 2 per cent.
For 27's, 26's, add 3 per cent.
For 25's, 24's, add 4½ per cent.
For 23's, 22's, add 6½ per cent.
For 21's, 20's, add 8 per cent.
For 19's, 18's, add 10½ per cent.
For 17's, 16's, add 13 per cent.
For 15's, 14's, add 16 per cent.
For 13's, add 18 per cent.
For 12's, add 21 per cent.
For 11's, add 25 per cent.
For 10's, add 30 per cent.
For 9's, add 38 per cent.
For 8's, add 48 per cent.
For 7's, add 61 per cent.
For 6's, add 76 per cent.
For 5's, add 94 per cent.

Large cops: When weft of the following counts is spun into large cops so that there are not more than 22 in 1 pound, the following additions shall be made in place of the allowance provided for pin cops in preceding table:

For 29's, 28's, add 1 per cent.
For 27's, 26's, add 2 per cent.
For 25's, 24's, 23's, add 3 per cent.
For 22's, 21's, 20's, add 4½ per cent.
For 19's, 18's, add 6 per cent.
For 17's, 16's, add 8 per cent.
For 15's, 14's, add 10 per cent.
For 13's, add 12 per cent.
For 12's, add 15 per cent.
For 11's, add 19 per cent.
For 10's, add 24 per cent.
For 9's, add 30 per cent.
For 8's, add 38 per cent.
For 7's, add 48 per cent.
For 6's, add 61 per cent.
For 5's, add 76 per cent.
For 4's, add 94 per cent.

Low picks: In four-stave twills an addition of 1 per cent for each pick or fraction thereof below the picks mentioned in the following table shall be made when using weft as follows:

Below 26's, the addition shall begin at 13; 26's to 39's, inclusive, at 14, and 40's and above at 15.

High picks: When using weft below 26's the addition for high picks shall begin at 21; 26's to 39's, inclusive, at 22, and 40's and above at 23.

In making additions for high picks, any fraction of a pick less than the half shall not have any allowance; exactly the half shall have one-half per cent added; any fraction over the half shall have the full 1 per cent added.

For weaving cloths known as herring-bone twills, four staves (harnesses), 5 per cent extra on twill cloth prices shall be paid.

Colored edges or borders with one or more colored ends at the side shall be paid 5 per cent on plain cloth prices.

The following additions shall be made for splits: One split, uncut, add 5 per cent; two splits, uncut, add 7½ per cent, and so on at the same rate. Empty dents only shall not be considered splits.

"Splits" are cloths woven with a center selvaged motion, so that when the piece is taken from the loom the wide fabric can be split into two or more practically perfect cloths.

LANCASHIRE TRADE.

VAST EXTENT AND VALUE—EXPORTS TO VARIOUS COUNTRIES.

In the following report Mr. Whittam describes the operations of cotton manufacturing in Lancashire, showing the successful results in supplying the world with fabrics and some of the intensive methods by which it is done:

Lancashire occupies in the cotton-spinning and manufacturing trade of the world relatively the same position as is held by the "cotton belt" of the United States in the production of the raw material. It is a maritime county, situated on the western coast of England and bounded on the north by the counties of Cumberland and Westmoreland, on the east by Yorkshire, and on the south by Cheshire. The area of the county is but 1,831 square miles, or 1,171,840 acres. The total population of this comparatively small area was at the last official census—that of 1901—4,406,787, or 2,461 inhabitants to the square mile. Cotton manufacturing under the factory system saw its birth in this county, beginning with the inventions of Watt, Hargreaves, Kay, Arkwright, Crompton, and Cartwright; nor have the people of the locality yet surrendered their lead in the world's dominant industry.

The area known industrially as the "Lancashire district" is perhaps the most astonishing and interesting manufacturing territory in the world. A considerable portion of the county is given over to agriculture and within an extreme radius of 30 miles of the city of Manchester this gigantic cotton industry is concentrated. To arrive at a correct idea of Lancashire's trade and advantage in cottons it should be remembered that the county produces coal in abundance, and as there is no water power available this is important. There are also many enormous machine shops, where every kind of requisite machinery and appliances are manufactured at close range.

A FOREST OF MACHINERY.

At the beginning of the year 1906 there were working in the Lancashire area 48,322,684 cotton spindles and 684,811 looms. Of this number 2,430,367 spindles and 32,731 looms were put into new mills during 1905, while during 1906 there were put fully to work, organized, under construction, or projected, 90 new spinning mills, which will contain 8,026,356 spindles, 2,089,000 of which will spin Egyptian cotton and the remainder will consume American-grown raw material. One mill just organized, "The Mammoth," will have when completed 250,000 spindles.

[A table showing the distribution of the mills at the beginning of 1906 is furnished by Mr. Whittam. The most extensive group of mills, especially in spindleage, are the 231 at Oldham, Chadderton, Crompton, Grotton, Hey, Hollinwood, Lees, Middleton Junction, Royton, Shaw, and Spring Head, which contain 13,575,367 spindles and 17,648 looms. The complete list is on file at the Bureau of Manufactures.]

About 90 per cent of the total of British spindles and looms are embraced in the Lancashire district, and at the rate new spinning corporations are still being organized England will in all probability

have very close to 60,000,000 spindles within the next twelve months. For some two and a half years every branch of the British cotton trade has been very profitable, and this has led to an unprecedented activity in mill building. This is bound to intensify competition in foreign markets, and when all the new machinery is in operation American manufacturers will have to fight more strenuously than ever before if our export trade is to increase to any appreciable extent.

WORLD-WIDE TRADE IN COTTON CLOTH.

The British home market is an important one, but her exports of manufactured cottons are enormous, as the subjoined details will show. The statistics cover the quantities and values of all kinds of cotton piece goods exported from the United Kingdom for the past three calendar years to the various countries of the world, as follows:

Country.	1904.		1905.		1906.	
	Yards.	Value.	Yards.	Value.	Yards.	Value.
United States	52,390,500	£1,567,811	65,563,400	£2,021,339	78,734,900	£2,216,150
Germany	60,128,900	1,006,573	65,916,300	1,094,015	72,965,100	1,242,907
Holland	46,187,300	708,549	56,614,400	817,015	56,059,600	849,808
Belgium	56,236,900	1,034,545	67,449,500	1,240,545	81,165,200	1,532,295
France	17,759,000	324,800	14,874,500	288,216	15,019,300	289,800
Portugal, Azores, and Madeira	29,440,000	357,799	29,868,800	377,601	35,107,300	447,999
Italy	7,903,800	170,830	8,706,500	193,534	11,067,500	248,430
Austrian territories	2,101,900	29,816	1,899,700	28,623	1,990,200	34,448
Greece	32,658,100	422,656	28,189,500	376,254	29,226,200	404,245
Turkey	379,566,600	3,997,112	376,207,600	3,966,777	478,951,500	5,123,106
Egypt	283,520,900	3,039,184	272,735,300	2,877,020	297,203,800	3,202,158
Algeria	437,800	4,957	454,500	4,977	304,400	4,493
Morocco	51,261,900	521,869	44,406,500	451,292	51,102,200	542,529
West Africa[a]	55,131,000	715,816	69,092,200	886,716	68,723,500	938,917
Persia	33,119,000	368,802	38,647,400	417,209	37,655,800	418,240
Dutch possessions in India	185,196,300	2,097,043	226,494,300	2,429,148	206,254,700	2,392,645
Philippine Islands	25,969,000	309,107	42,875,800	475,812	36,632,800	486,580
China and Hongkong	548,973,600	7,650,818	799,733,300	10,197,264	647,425,400	9,257,159
Japan	42,373,000	588,858	128,723,800	1,603,714	110,286,400	1,599,984
West Indies	98,796,500	911,582	75,846,400	698,128	75,596,400	756,000
Mexico	21,678,500	308,875	21,027,400	290,145	25,587,200	374,685
Central America	53,018,400	487,917	48,926,200	464,868	42,864,700	458,068
Republic of Colombia	44,647,700	473,295	31,985,100	320,768	58,174,600	609,786
Venezuela	52,933,900	457,595	32,722,500	287,782	50,906,000	453,035
Peru	32,430,400	385,549	39,034,700	451,418	36,902,000	452,325
Chile	80,835,900	864,302	96,996,000	1,059,418	104,449,400	1,238,906
Brazil	134,840,700	1,621,987	131,503,700	1,611,580	124,167,600	1,675,596
Uruguay	35,669,700	423,064	56,759,700	696,960	43,911,000	586,653
Argentine Republic	186,021,600	2,354,040	159,115,300	2,149,145	192,919,000	2,840,644
Gibraltar	10,577,900	108,704	3,960,400	45,028	2,638,500	33,452
Malta	3,659,300	52,621	4,005,800	55,273	3,586,900	53,272
British Africa:						
West coast	69,308,000	990,370	74,391,800	1,054,619	73,834,700	1,095,235
South Africa	29,670,100	497,775	50,592,500	777,997	59,947,900	983,248
British East Indies:						
Bombay	818,260,700	7,586,312	908,639,100	8,473,231	910,147,900	8,638,342
Madras	141,674,900	1,551,337	131,145,200	1,432,032	146,277,600	1,643,144
Bengal	1,215,607,200	11,017,481	1,279,677,000	11,617,108	1,209,310,900	11,205,233
Burma	79,765,400	1,028,521	72,527,700	946,970	86,051,300	1,118,151
Straits Settlements	100,230,200	1,187,990	121,670,400	1,374,084	131,212,300	1,501,230
Ceylon	19,336,000	237,322	25,044,200	308,492	23,868,800	302,149
Australia	128,246,700	2,142,774	136,475,800	2,192,797	154,993,600	2,610,393
New Zealand	33,538,400	532,086	32,315,100	488,827	37,423,000	615,265
Canada	49,903,300	883,896	45,243,400	841,411	55,155,100	1,013,163
British West Indies and Guiana	43,496,500	472,979	47,172,400	510,976	49,579,400	554,022
Other countries	197,338,000	2,582,955	231,553,100	2,927,081	246,113,400	3,297,647

[a] Foreign.

The total of all kinds of cotton piece goods exported from the United Kingdom for each calendar year 1904–1906 figures up:

Piece goods.	1904.		1905.		1906.	
	Yards.	Value.	Yards.	Value.	Yards.	Value.
Gray goods	2,033,983,300	£18,880,366	2,336,218,500	£21,933,398	2,325,752,200	£22,771,651
Bleached goods	1,528,115,700	16,759,261	1,709,819,500	19,033,712	1,684,540,200	19,689,942
Printed goods	1,036,733,000	12,556,710	1,053,674,000	12,577,527	1,131,596,000	14,163,730
Dyed goods	992,987,700	15,881,900	1,097,071,900	17,276,482	1,119,406,000	18,768,914
Total	5,591,819,700	64,078,237	6,196,783,900	70,821,119	6,261,294,400	75,394,237

OTHER INCREASING EXPORTS.

The quantities and values of cotton yarn exported from the United Kingdom for the past three calendar years have been as follows:

Country.	1904.		1905.		1906.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Russia	712,500	£91,157	556,700	£71,110	1,068,600	£97,236
Sweden	1,486,300	77,747	1,512,100	70,051	1,773,100	89,388
Norway	1,511,100	69,579	1,605,500	65,114	1,711,600	78,979
Denmark	2,367,700	100,453	2,861,900	113,385	2,441,100	110,627
Germany	40,295,100	2,732,364	39,513,100	2,697,219	41,014,100	3,227,956
Holland	29,384,200	1,283,609	37,442,000	1,389,654	39,752,700	1,670,718
Belgium	5,863,800	403,108	7,205,200	486,287	5,979,500	433,107
France	3,084,100	257,162	3,517,700	331,847	4,971,000	562,764
Italy	173,800	17,886	203,600	18,843	156,100	15,215
Austrian territories	3,328,500	199,158	3,064,900	169,639	3,586,000	255,025
Roumania	5,071,600	213,973	7,855,500	318,344	9,355,600	405,994
Turkey	14,252,500	596,940	17,390,500	679,137	15,378,000	646,748
Egypt	4,380,800	179,439	4,372,400	156,883	3,514,700	138,158
China and Hongkong	2,457,200	104,882	8,440,900	305,891	5,550,600	242,710
Japan	680,700	32,508	4,070,700	237,209	6,313,900	401,980
British East Indies:						
Bombay	8,145,100	403,031	13,112,000	593,548	12,029,600	637,465
Madras	8,288,400	431,122	10,929,900	542,411	11,054,900	580,462
Bengal	6,596,200	352,421	11,068,400	516,664	10,933,800	545,242
Burma	3,388,300	174,858	4,211,000	216,040	3,734,100	189,515
Straits Settlements	1,137,400	54,835	2,148,700	95,898	2,083,100	92,193
Ceylon	44,100	3,033	41,700	2,355	25,300	1,443
Other countries	21,252,000	1,175,833	23,976,100	24,945,700	1,241,025	1,413,042
Total	163,901,400	8,955,098	205,100,500	207,373,100	10,318,554	11,835,967

Exports of miscellaneous cotton manufactures for the three calendar years named were as follows:

	1904.		1905.		1906.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Lace and patent net		£3,561,735		£3,730,908		£4,399,046
Hosiery: Stockings and socks, dozen pairs	640,674	221,427	574,483	157,028	683,354	196,708
Other kinds		252,404		360,828		514,175
Thread for sewing and stitching, pounds	24,332,700	3,411,971	23,430,700	3,381,922	26,537,800	4,026,886
Other manufactures, unenumerated		3,402,835		3,240,626		3,435,516
Total		10,850,372		10,871,312		12,372,331

The total value of all kinds of cotton manufactures exported for the twelve months of 1906 was £99,602,535, equivalent to $484,715,737 in American currency. It will be seen that Germany, Holland, Turkey, India, Egypt, China, Japan, Brazil, Argentina, and Australia are Britain's best customers, and that gray goods form the largest class both as to yardage and value. The exports of cotton cloth from the United States to the same countries for the last three fiscal years ending June 30 form a significant comparison. They were:

Country.	1904.		1905.		1906.	
	Yards.	Value.	Yards.	Value.	Yards.	Value.
United Kingdom	2,461,655	$247,215	3,264,200	$354,087	3,028,994	$381,166
Germany	90,055	8,994	105,953	10,286	538,676	41,994
Other Europe	1,040,150	80,093	1,899,155	141,748	1,830,579	154,531
British North America	10,022,483	821,754	9,005,109	689,101	9,988,015	861,062
Central America	21,538,721	1,189,568	27,354,937	1,508,774	27,746,701	1,571,791
Mexico	3,036,001	211,824	3,319,127	270,143	2,686,285	265,064
Cuba	6,125,331	411,068	17,393,385	915,889	20,386,876	1,049,406
Other West Indies	20,091,629	1,234,866	24,936,500	1,445,135	31,310,002	1,745,781
Argentina	1,980,951	173,631	3,502,418	385,968	2,527,466	291,567
Brazil	9,197,489	664,576	9,589,055	745,962	8,363,354	590,007
Chile	11,852,069	673,593	12,856,766	742,771	14,103,458	871,272
Colombia	14,824,158	824,672	15,762,476	817,025	12,908,600	653,913
Venezuela	9,047,394	499,011	7,603,349	415,843	6,415,923	338,546
Other South America	6,099,875	392,267	7,735,312	464,723	6,753,509	441,262
China and Hongkong	77,227,740	4,151,106	475,418,441	27,834,322	498,896,365	29,635,054
British East Indies	6,859,646	440,657	6,816,054	479,876	9,170,688	646,569
Japan	439,910	54,992	16,231,710	1,154,274	2,066,388	219,915
British Australasia	4,471,518	413,617	6,421,865	560,994	8,462,645	743,333
Philippine Islands	5,046,749	253,371	15,957,161	767,309	3,836,059	189,516
Other Asia and Oceania	29,208,514	1,576,325	23,117,948	1,275,016	32,343,080	1,898,603
British Africa	6,235,850	345,440	5,654,323	298,407	7,355,707	400,972
All other Africa	482,859	37,619	555,483	42,889	773,684	70,486
Total	247,380,737	14,696,199	694,500,715	41,320,542	711,493,054	43,181,860

Having shown the importance of the export trade, we come to examine the reasons for so large a share being in the hands of a nation which is situated at a great distance from the source of the raw material.

ADVANTAGES OF SPECIALIZATION.

In Lancashire the cotton industry is highly specialized. Generally the operations of spinning and weaving are conducted in separate establishments. The manager of a weaving mill will more often than not know little if anything of a spinning mill, and vice versa. Consequently he develops into a more competent man than the one who is burdened with the superintendence of the numerous and intricate processes involved in the converting of raw cotton into finished cloth.

There is another advantage which goes with this separation of weaving and spinning operations. The huge spinning mills are, as a rule, laid out to make counts within a limited range and they seldom change. This practice makes possible a greater production of a better quality than is obtainable in mills spinning a wide range, necessitating frequent changes. Many other economies follow from this plan. On the other hand, the weaver buying his yarn in the cop has the widest scope. He can quickly and inexpensively change from one make or style of cloth to another, and at the same time take advantage of any favorable aspect of the market. Of immense importance also is the concentration of the trade. Everything that

can possibly be needed in every process of manufacturing is at hand and can be obtained quickly. Repairs are done by outside machine shops, and thus the "odd hands," so costly yet necessary in many American mills remote from populous centers, are here almost unknown.

Before dealing with the methods of buying and selling, it should be pointed out that differentiation is carried still further. Broadly speaking, the spinning and weaving, in addition to being conducted in separate factories, are also, in the main, conducted in different districts, South Lancashire being a spinning area while weaving is most common in North and East Lancashire. There is still further subdivision, even within the boundaries enumerated, Bolton and Manchester being the centers of fine yarns, such as we use for spool cotton and kindred purposes, while Oldham and district mostly spin yarns for weaving. Also, in the weaving, Preston and Chorley weave light-weight fancy goods, Colne and Nelson colored fabrics, while Blackburn and neighborhood make shirtings and dhooties, heavily sized, of which British India takes such enormous quantities.

GRAND CENTRAL INTERCHANGE.

Printing and bleaching such cloths as are sold in the "gray" is also carried on separately, the manufacturer seldom coming in business contact with either. Manchester is the business center, and the work of manufacturing and distributing are divorced completely, the "home trading house" standing between the maker and the retailer, while "shipping houses," so called, act in like manner as middlemen between the mills and foreign purchaser. All these houses have their offices in Manchester, and the Royal Exchange is in the very heart of the city, where practically the whole of England's great home and foreign cotton trading is done. Practically every mill in the country has its representative there on Tuesday and Friday, the two principal market days. The yarn spinner sells and the weaver buys his yarn "on change." Machinery agents, supply dealers, yarn and cloth agents congregate on the floor to the number of five or six thousand for two or three hours on market days.

It is a magnificent system for economizing in expense of distribution. Consider an example. The representative of a "shipping house" wishes to fill an order for printed calicoes. "On change" he finds many weavers of this class of goods. The goods are purchased in the gray. He next finds a "printer," and bargains with him as to price, pattern, and delivery. The weaver then turns to the spinner, and purchases the yarn to make the order, which when completed is shipped by the weaver to the printer, who in turn delivers it to the shipper's warehouse, where the lot is examined, labeled, folded, packed, etc., by men who thoroughly understand the tariff requirements of the countries to which the goods are to be shipped, as well as the requirements of the purchaser abroad. So far as spinners and weavers go, Manchester business is done on practically a cash basis, terms being 2½ per cent off, fourteen days.

OCEAN SHIPPING-RATE COMPARISONS.

As to freight rates on raw material, taking Savannah as a port of departure, Liverpool and Manchester are generally about equal to

New York and Boston. A short time ago the rates were to New York by steamer 23 cents per 100 pounds, to Liverpool 23 cents, to Boston 25 cents, to Manchester 25 cents.

Everything which affects the cost of cotton to the spinner is important. Taking half a dozen centers, I find the following charges by landing cotton in Manchester and getting a through rate over the cost via Liverpool per long ton:

	Via Manchester.	Via Liverpool.	Saving via Manchester.
	s. d.	s. d.	s. d.
Bolton	10	13 6	3 6
Bury	8 10	13 10	5
Blackburn	12	15 6	3 6
Oldham	9 9	14 8	4 11
Preston	11 6	13 10	2 4

The rates to Bolton, Blackburn, and Preston include cartage from railway to mill, but this is not included in the Bury and Oldham rates.

WAGES, COSTS, AND OUTPUT.

As showing the progress in manufacturing methods, in 1882 it was computed that an average spinning mill employed 5.71 workers to each thousand spindles. In 1893 this had dropped to 4.86 persons, while in the modern mills to-day 2½ hands per thousand spindles is considered a maximum. The legal working hours have been reduced in the same period from 56½ to 55½ weekly. Production per spindle per year rose from 31.5 pounds in 1882 to 32.4 pounds in 1893, reaching 32.8 pounds in 1905, and it is undoubted that this gain in yield per spindle is really greater than the figures show, because the average counts produced have increased in fineness during the period. The average weekly wages per operative in 1882 were 17 shillings ($4.08); in 1893 the rate was 19 shillings ($4.56), and at this writing the rate is calculated to be 19s. 6d. ($4.68). Taking the same sort of data for weaving mills, the hours of labor are the same. Average weekly wages have risen from 15 shillings ($3.60) in 1882 to 16s. 6d. ($3.96) in 1893, and again to 18s. 6d. ($4.32) in 1905. In this connection it must be said that Lancashire's weaving mills employ a considerable number of children, who work in the mill half a day assisting four-loom weavers and attend school the other half day. And further, there are many more young persons running only two or three looms than are found in American weave rooms. This has a tendency to make the apparent average earnings lower than the circumstances warrant. The question of piecework prices and costs of production I shall take up and complete in a separate report.

In spinning the labor cost per pound has gradually diminished while the earnings of the workers have increased, and there has been a gradual rise in weaving labor cost. In 1882 weaving labor cost averaged 4.60 cents per pound and spinning 3.8 cents. For the year 1893 weaving was 5.18 cents and spinning 3.2 cents a pound, while during 1905 weaving had risen to 5.26 cents and spinning had dropped to 3 cents. The increase in weaving is, I am informed, due in part to a general advance in wages, but principally to the rapidly

growing trade in fancy weaves and finer and more expensive cloths. Production per loom per year in pounds grew from 1,806 in 1882 to 1,886 in 1893, reaching 1,895 in 1905.

MILL AND TENEMENT CONSTRUCTION.

In the United States the "slow-burning construction," consisting of brick walls and heavy floors, beams, and posts of timber, forms the standard type of cotton factory, while here the "fireproof" type of cotton factory is universal. Weaving sheds, known as "room and power" establishments, are numerous and increasing, especially in the East Lancashire districts. These consist of the ordinary shed type of weaving room built by companies for an investment and not to operate. They contain looms and motive power and are rented to practical weavers on one of three plans, to wit:

First. The tenant rents room and power only, installing his own looms. For this he will pay from 38 to 45 shillings per loom per year. [Shilling=24⅓ cents.]

Second. Renting room and loom only will cost from 35 to 45 shillings a year per loom.

Third. Renting room, loom, and power involves a rental ranging between 55 and 70 shillings per loom a year.

The higher price in each case is charged for the more modern establishments.

There are many notable instances in this county of men who were loom fixers starting on one of the foregoing plans, wife and children operating the first few looms rented, and who now own and operate very large establishments of their own. This impresses me strongly as an excellent plan to follow in the United States in manufacturing districts where cheap electrical power is available. It would undoubtedly lead in the long run to that form of specialization which has contributed so much toward Lancashire's present supremacy.

SKILLFUL TESTING OF DETAILS.

The Lancashire spinner and manufacturer pays great attention not only to the finer practical details inside the mill, but he has also surrounded himself with a cheap and ready means of detecting fraud or misrepresentation in almost everything he buys. This applies also to the merchants. The protection is furnished by the testing house of the Manchester Chamber of Commerce, whose laboratory is in the Royal Exchange. Such tests and examinations as the following are undertaken:

(1) Investigation for cause of damage, of stained, mildewed, striped, or tendered textiles.

(2) The examination of water to show suitability for boiler purposes, bleaching, and dyeing.

(3) Comparative tests of oils as regards lubricating and other properties.

(4) Analysis of size contained in cloth and of sizing and finishing compositions.

(5) Analysis of paper makers' supplies, stores, and deliveries.

(6) Reports upon the accuracy of tensile testing machines, balances used for estimating the count of yarn, counting glasses, etc.

(7) Investigations for textile and chemical manufacturing firms to ascertain cause of irregularity in manufacture by examination of samples.

(8) Analysis of dyers' and chemical merchants' dyes, drugs, and other products.

(9) All physical tests of cloth and yarn, identification of fibers, counts, moisture, strength, length, etc.

The schedule of charges for such tests is as follows:

Yarns.

		s.	d.
For moisture only	per sample	2	6
For counts only (in condition received)	do	1	6
For strength only	do	1	6
For twist only	do	1	6
For moisture and counts (in correct condition)	do	3	6
For moisture, counts, and strength	do	4	6
For moisture, counts, strength, and twist	do	6	0
For strength and twist	do	2	6
For strength counts (in condition received)	do	2	6
For length of hanks (4d. per hank of 840 yards)	minimum charge	2	0

Cloth.

For counts, warp and weft	per sample	4	0
For counts, warp or weft	do	2	6
For reed and pick to ¼ in. or 1 in. glass	do	1	6
For reed or pick to ¼ in. or 1 in. glass	do	1	0
For strength, warp and weft	do	3	0
For strength, warp or weft	do	2	0

Other tests of textile fabrics.

Amount (in percentage) of size and moisture	per sample	5	0
Total china clay and other minerals	do	5	0
Amount (in percentage) of zinc chloride, magnesium sulphate, or magnesium chloride	per sample	10	0
Amount (in percentage) of zinc chloride, magnesium sulphate, or magnesium chloride (any two)	per sample	15	0
Amount (in percentage) copper oxide	do	10	0
Amount (in percentage) grease	do	5	0
Amount (in percentage) cotton, wool, or silk in mixtures (any two)	do	7	6

From all of this it will be readily seen the ample means the Lancashire textile manufacturer has to insure getting exactly what has been bargained for. The operation of cotton factories is very closely and rigidly regulated by acts of Parliament. The relations between employer and employee are governed by strong organizations on both sides, and mutual rules and regulations to avoid strikes and friction have been drawn up and are known as the "Brooklands agreement."

METHODS OF FLOATING NEW COMPANIES.

I learn that the cost of constructing and equipping both spinning and weaving plants has largely increased during the present "mill-building boom." Where, a few years ago, £18 to £20 per loom would complete a weaving shed it now costs £25 to £30, including the preparatory processes of spooling, warping, slashing, etc. Similarly, a mule spinning mill on, say, 50s carded, which formerly cost 22s. 6d. per spindle now costs 30 shillings.

There is a good deal of complaint heard about the way in which many of the new mills are being promoted. Take a typical instance. The capital stock of a 100,000-spindle mill was fixed at £100,000 sterling, payable at the rate of 2 shillings a share at intervals. The mill is nearly in full operation at the present time and only 6 shillings a share has been called in. It is proposed to call on the stockholders for not more than 10 shillings a share, the remainder of the money needed being secured partly from banks but mostly from small depositors, who loan their savings to the mills at 4½ per cent per annum. Virtually, the manufacturing company conducts a banking business. Later the second 10 shillings a share will be called in, when another mill will be built. The complaint arises, however, from the habit of requiring everybody who desires to secure contracts for either machinery, equipment, construction, or building materials to take a number of shares in the enterprise as a condition precedent to awarding the work.

Electricity generated by steam is being tried in three of the new spinning mills, but as yet Lancashire has not taken kindly to this innovation.

WEAVING METHODS.

THE ENGLISH PRACTICE MANY ECONOMIES AND WATCH DETAILS.

A report by Mr. Whittam on Lancashire weaving methods will interest manufacturers in this country. The report follows:

Taking the standard upon which the list is based, as given on a previous page, the uniform list provides that for "splits" the following additions shall be made, with the proviso that what are merely empty dents shall not be considered "splits:" For one split, uncut, add 5 per cent to the list; for two splits, uncut, add 7½ per cent to the list. As already explained, "splits" are cloths woven with one or more practically perfect selvedges in addition to the two usual outside ones, thus making it practicable to weave a cloth which, when taken from the loom, can be split into two or three perfect pieces by cutting between the middle selvedges, which are made by the attachment of a very simple motion; or they may be woven with "doup harness," in which case the "drawer-in" is paid 1 penny (2 cents) per beam extra. There is considerable economy in the practice, and as it is common in England and almost nonexistent in the United States, it deserves the serious attention of such of our manufacturers as desire to extend their export connections in the face of the rapidly growing competitive power of Great Britain. I have procured a typical sample piece, which is used for printing purposes, and shall forward it to the Bureau of Manufactures. The particulars of the piece are: Reed, 64; picks per inch, 64; width, 53 inches; length, 150 yards long stick, or 36½ inches per yard; counts of warp, 36s; counts of filling, 38s; price, 41s. 2d. ($10) less 2½ per cent.

The piecework price for weaving this "split" (two cloths in one loom) would be 5s. 1½d., but if the cloth were woven in two narrow looms it would be 3s. 9d. per piece, or 7s. 6d. for the two, a saving of

2s. 4½d. (57 cents). For an approximately equal production the wider looms would also effect savings in power, supervision, floor space, and loom supplies, thus showing added economies in both working expenses and invested capital.

MANUFACTURING SPLITS.

It is the universal custom here for a master weaver when calculating the selling price of a piece of cloth to arrive at the cost of the yarns entering into it. Then to the standard weaving price is added once again the weaving piecework price to two and one-half times this amount. As it is termed, "double the weaving" is used for the plainest goods and one and one-half for "splits" and other like varieties to two and one-half times for fancy jacquard goods, such as brocades, difficult leno weaves, etc. Taking the "split," of which I am sending a sample, and from the particulars given above, the cost would be worked out in this manner:

	Pence.
Cost of warp yarns, 17.6 pounds, 36s. at 10d.	176
Cost of filling yarns, 17.3 pounds, 38s. at 9½d.	164
Piecework weaving, 5s. 1½d., say	61
One and a half times weaving	93
Total cost	494

or £2 1s. 2d. ($10). This figure includes not only cost but the usual profit at prevailing margins.

On the other hand, if the pieces were woven in two narrow looms after the old method and the one now prevailing in the United States, the cost would be:

	Pence.
Warp, 176 divided by 2	88
Filling, 164 divided by 2	82
Piecework weaving	45
One and a fourth times weaving	57
Total cost (one narrow piece)	272

or for the two narrow pieces corresponding to the one split £2 5s. 4d. ($11). This shows a gain expressed in terms of American currency of but 57 cents on the piecework weaving price, whereas the economy on the entire cost of the piece is $1. The reduction in the number of times weaving from one and one-half on the "split" to one and one-fourth on the narrow is on account of the usual custom of figuring, although I am informed that in the present prosperous state of the trade one and one-half times would be added in both instances, and this would show still better in favor of the wide "split" loom. How important the difference is in bad times will be at once apparent, seeing that the broad split loom has 10.1 per cent advantage over the two narrow looms. The addition of a varying number of times the weaving price covers waste, winding, warping, slashing, examining, packing, salaries, expenses, supplies, and in fact all other charges, including a profit. Contrary to the American practice of quoting for goods at so much per yard, the English manufacturer sells by the piece. This latter plan allows of closer bargaining.

AVERAGE EARNINGS IN WEAVING SHEDS.

Aside from strictly piecework prices, which are governed by recognized lists, it will be useful, for comparative purposes, to give the average earnings of the different workers, remembering that a legal working week is only fifty-five and one-half hours. Watchmen or lodge keepers, whose duties are to keep out strangers and do odd jobs, are paid from 18s. to 22s. weekly. Common laborers, such as beam carriers who take the weavers' beams from the twisting-in or drawing-in room to the looms, 20s. to 22s. weekly. Spoolers' average earnings vary considerably, ranging between 12s. and 25s. weekly. Overseers of spooling and warping, who not only exercise a general supervision over the department but calculate amounts of warp and filling, and if colored goods are made ascertain the weight of each color or different count of yarn to fill each order, earn from 25s. to 40s. a week. Slasher tenders get from 40s. to 50s. and their helpers are paid between 18s. and 21s. a week. Weavers on fancy goods earn from 5s. 6d. per loom to 9s. a loom a week, while on plain work their earnings fluctuate between 5s. and 7s. 3d. per loom weekly. These figures cover ordinary variations, although I found at least two very long established firms, excellently managed, which can always secure the cream of experienced plain weavers, where the average of all their looms—one over 2,000 and the other having about 3,000 plain looms—reached nearly every week 7s. 6d. in the former and but 4d. per loom less in the latter instance.

Weavers here run two, three, or four looms each, according to individual proficiency, but on looms making cloth 36 inches or wider it is rare to find one operator in charge of more than four looms. Indeed, it is rather usual for a four-loom weaver to employ a full-time tenter, or helper, or at least a half timer, who will work half a day and is compelled to attend school the other half day. Missing an attendance at school enforces a corresponding compulsory absence from work. Tenters are paid 5s. 6d. a week for full time and half of this sum for half time. Usually a weaver with a tenter gets off a better production as to both quantity and quality than one without this assistance; hence, although the wages of the tenter are paid by the weaver out of his earnings, the difference is not by any means as much as would seem. Here weavers clean and oil their own looms, sweep the floors, bring their own filling from the warehouse, and when a "cut" or piece is taken from the loom it is unrolled and carefully folded, afterwards examined and trimmed, all bad or faulty places being as far as possible repaired, and the piece is afterwards carried to the warehouse by the weaver.

LOOM ATTENDANCE AND POUNDAGE.

This system is so absolutely different from the American plan, and so much work other than strictly attending to keeping the looms in motion, keeping the shuttles supplied with filling, and piecing broken warp threads being performed, that it has been found impracticable to saddle one worker with the supervision of more than four machines, where in America six or even eight looms of like width would be run by one hand. This observation must, however, be modified by stating that 43-inch looms, weaving cloth up to 39 inches wide,

are run at a speed of from 200 to 220 picks a minute. The shed manager, corresponding in authority and duties to a weaving overseer in American mills, is paid from 40s. to 60s. weekly. Loom fixers are generally paid a percentage on the earnings of the weavers under their authority, wages varying from 40s. to 50s. a week. This percentage is known as "poundage," and the rate for two districts is appended. The amounts given below are paid to the "fixers" on each pound sterling earned by the weavers under their charge:

Blackburn loom fixers' percentage or "poundage."

	s.	d.	s.	d.
Ordinary shirtings	1	4	to 1	5
Jacconets	1	4	to 1	5
Twills	1	5	to 1	7
Staved work	1	6	to 1	8
Dhooties	1	4	to 1	6
Dobbies	1	5	to 1	10

Burnley loom fixers' "poundage."

	s.	d.	s.	d.
Plain cloths	1	1	to 1	3
Twills	1	3	to 1	5
Jeanetts	1	3	to 1	5
Dobbies	1	4½	to 1	9
Splits	1	2	to 1	9
Dhooties			1	3
Drills			1	3½

Fixers' poundage is not subject to either reductions or additions when such changes are made in the weaver's lists, it having been previously deducted from or added to the weaver's wages.

Coming to what may be termed workers who come under the head of "general expenses." I find that in the yarn warehouses the men in charge will be paid from 18s. to 23s.

FINISHING, PACKING, AND SELLING.

A cloth-room overseer receives 30s. weekly. His duties vary, but he may generally be said to be responsible for the general conduct of his department. He also personally attends to deliveries against sales being made at the proper time and in the stipulated quantities. When new sorts are introduced into the shed he also personally examines the first piece from each new beam. Cloth examiners (men), who examine the cloth and assess fines against the weavers for imperfections, receive from 20s. to 27s. Bundlers, who make the goods up into bundles ready for shipment, get from 16s. to 20s. Folders, who operate the cloth folding and measuring machines, are usually boys, whose wages range between 6s. and 8s. weekly. Sorters are remunerated at a weekly rate of from 10s. to 14s.; bookkeeper in the warehouse from 14s. to 20s. Office and management wages are, for cashier, 40s. to 60s.; for clerks, 15s. to 25s., and for boys, 6s. to 10s. Salesmen receive 80s. to 200s., depending on the size of the concern and the intricacies of the fabrics produced. The salesman attends the Royal Exchange in Manchester, calls on home and foreign merchants, and must be competent in a few minutes from a small sample to quote a price, no matter how elaborate the design. General managers are paid from 70s. to 200s. Here, again, size of plant and the technical knowledge of the manager largely governs his remuneration.

In Oldham, Blackburn, Manchester, and other centers of cotton machinery and equipment builders I hear strong complaints on the scarcity of iron and its advancing prices. The demand for cotton machinery, engines, boilers, and structural iron is unprecedented, as may be readily inferred from my previous report giving statistics of new mills. Last month (November, 1906) one firm paid £7 5s. per ton for iron, against £5 4s. paid during the corresponding period of 1905. There seems to be no prospect of any diminution in the demand, as the last ten days has witnessed the projection of four new mills, aggregating over 400,000 spindles, besides several new weaving sheds and two "room and power" buildings for weaving. Illustrating the effect this condition of things has had on the price of looms, I learned that last week one of the largest firms in Lancashire asked for prices and delivery on a quantity of new looms and they were quoted from £10 to £11 5s. for plain 45-inch reed space machines. This is known in Lancashire as the "standard" size. The earliest delivery they could obtain was to begin eighteen months after date of order.

SHIPPING YARN AND CLOTH.

Yarn is shipped from spinner to weaver in cane baskets or skips, the former being used for filling and the latter for warp, or, as they are termed here, "twist" cops. A basket will contain slightly over 100 pounds and a skip about 300 pounds of yarn. The freight is paid by the purchaser, and the rate depends, of course, on distance, but for 30 miles or so (an average distance) it is about 15 cents per hundredweight of 112 pounds, and the rate on cloth is the same for a like distance. The skips and baskets are returned to the spinner, and the freight rate in the Lancashire district on these empties is a uniform one of 1 penny (2 cents) each on baskets and 2d. (4 cents) each on skips, including delivery from depot to mill. This is a further illustration of the economy of collection which Lancashire enjoys when compared with the heavy and expensive wooden cases which spinners in the United States have to purchase for every shipment.

Freight on cloth is paid by the weaver, but when reshipped by the merchant to the finisher the former pays the carrier's charges. On fabrics above the lowest grades the merchant in Manchester receives the cloth in the gray at his warehouse, where he maintains a staff to examine and refold every piece, so that he then has a check on both weaver and finisher, faults attributable to the manufacturing processes being noted, and when the goods are again reexamined in the merchant's warehouse after finishing, any damages caused by the latter can be effectively brought home to him.

Cloth is shipped in uncovered bundles, loaded on a "movable float," carried on a "lurry"—a sort of flat vehicle. These carry several tons, and when taken to the railway the float and its load are transferred by a derrick to a flat car and covered with a tarpaulin—another illustration of the saving of time in covering of bales and handling.

It is the universal practice here to put less twist in warp yarns than obtains in America. Although I shall have occasion to refer to this subject again when dealing with spinners' price lists, I give the twist standards here for the information of those specially interested in the weaving branches. They are:

For East Indian and American cottons: Mule-spun warp, square root of counts, multiplied by 3.75; mule-spun filling, square root of counts, multiplied by 3.25; frame-spun warp, square root of counts, multiplied by 4.

For Egyptian cotton: Mule spun warp, square root of counts, multiplied by 3.606; mule-spun filling, square root of counts, multiplied by 3.183; frame-spun warp, square root of counts, multiplied by 3.606.

SPINNING OF FILLING.

It is not usual in Lancashire to spin filling on spinning frames, except in some of the mills which weave their own spinnings on the premises, although I have been through two spinning mills in which frame filling is being spun on paper tubes for shipment, and these are putting in standard mule twist only. It is obvious that the English practice gives a greater production per spindle, at the expense of strength of yarn, as compared with the American standard, but there is the advantage in favor of the English plan of producing a cloth with a better "cover" and a more "clothy" feel, and this, they maintain, is what the vast majority of both home and foreign consumers demand.

In some instances it is essential that warp yarns be twisted as little as possible consistent with well-running work in the subsequent processes, as when heavily sized goods are to be made. These require a soft "oozy" thread, as it is called, in order to enable the heavy percentage of size to thoroughly penetrate the yarn. It is also maintained that the loss in strength due to less twist is compensated for by somewhat heavier sizing in what are known as "pure-sized" goods. As against the usual American 6 per cent and British "pure size" it may mean anything between that figure and 20 per cent. In fact, I have just inspected a large mill making plain goods both for shipment in the gray and for bleaching, and both carried 20 per cent of size in the warp.

I came across another practice which has recently been adopted by some firms. When not very high-class goods are known to be for bleaching purposes, and are sold as made from Egyptian cotton, they are spun from American cotton "tinted" to the "balbriggan" shade by the addition of Bismarck brown or some other such dyestuff to the sizing mixture. This serves to illustrate one form of competition.

NEW LOOM ATTACHMENTS.

I also found some weaving sheds experimenting with one type or another of "pick indicator," being an apparatus attached to the loom which indicates the number of picks the machine makes. Each time the shuttle is thrown one pick is recorded. Then, instead of the operative weaver being paid by the piece, he will be compensated at a rate for 100,000 picks. This, it is claimed, is more equitable to both

employer and worker, for if more picks per inch are being put in the cloth than the particulars give it is to the disadvantage of the weaver, while if less it is the owner's loss, and it is not uncommon, either here or in America, for either of these conditions to exist, either through accident or design. Again, when a weaver is absent for any reason or leaves his employment with one or more pieces unfinished he must either wait for his pay until the pieces are finished or take his remuneration by guess. With this attachment, however, the amount due can be at once and exactly ascertained.

Another invention recently perfected and which is attracting some attention here is an arrangement whereby the number of picks per inch put in the cloth can be altered at once without any calculation or change of gear. It consists of a dial, with a large range of picks marked on its face, and a pointer. To change the picks it is only necessary to release a lock nut and set the pointer to the number on the dial corresponding to the number of picks per inch required, retighten the nut, and start the loom. If this proves a practical arrangement its advantages are obvious. It at once dispenses with the necessity of having a large number of change gears in stock. No calculations are required and time will be saved in many ways, which the mill owner can at once see without enumeration here. It is also claimed that it can regulate the picks to one-quarter of a pick per inch. I have watched this at work and seen many changes made, and it appears to be an advance on present methods.

DHOOTY WEAVING.

COST OF DRAWING-IN AND TWISTING IN LANCASHIRE FACTORIES.

Details of the manufacture of dhooties, of which millions of dollars' worth are made mainly for the India trade, are given by Mr. Whittam in the following:

The official piecework prices paid by Lancashire mills for "drawing-in" and "twisting" are itemized in this report, and in order to make the differences in the textile terms of the two countries plain the following explanation is made of such terms as are perhaps not so well known to the trade in the United States as they are in England:

Taped stripes are striped cloths which can be made in plain looms. The stripe is secured by putting from 4 to 8 ends in a dent at various distances across the piece for any required number of dents. Thus the drawer of the ends through the healds and reeds has the count of the number of dents between stripes, as well as to see that he puts the right quantity of dents with extra ends in. For this extra trouble he gets 1 pence (2 cents) for 1,000 ends extra over plain drawing (viz, 6¼ pence instead of 5¼ pence per 1,000). The ends in the stripe in these goods are usually drawn in 2 ends per heald, but may be 4 to 8 ends per dent.

Rep or rep-heading are drawn in 2 per heald, sometimes only in borders (as in case of dhooties), but often at various distances across the piece.

Bitting healds is adding to the width of healds by cutting any short length, say 3 or 4 inches, as required off 1 set to make another set wider. Often, when, say, 15 sets of 72s plain healds 36 inches wide are required, there might be 18 sets of 72s 32 inches wide in stock, but none 36 inches wide, in which case they would cut 2 sets of the 32 inches in "bits" of 4 inches to add on to the others, so as to save buying new healds, thus making the 32 inches into 36 inches wide. Of course when this is done the wooden staves at the top and bottom of the harness have to be changed to wider ones.

Cable cord consists of a cord end which is formed by twisting 2 or more ends of 2-ply or 3-ply yarns together. For example, 4 ends of 2-ply 20s twisted together equals 8 ply 20s; 6 ends of 3-ply 24s twisted equals 18-ply 24s; and 6 ends of 2-ply 40s twisted equals 12-ply 40s. Cable cord in the drawers' list is a striped cloth where the stripe is obtained by very thick ends being drawn in at various distances apart to form the stripe.

Doria stripe cloth is a plain cloth, but at various distances apart 8 or 10 ends of the ground warp threads are drawn in one heald and one dent in the reed, which, when woven, forms a stripe similar to a cable cord cloth, only that in the former the weave is always plain, only requiring 4 harness. On the other hand, a cable cord is sometimes drawn in one or two extra staves so as to weave different to the ground when necessary. For drawing these ends in one heald to form a stripe the drawers are paid 2 or 3 pence per 1,000 ends extra over plains. Doria stripes require only one beam, there being only one count of warp.

Boat or mail sides are required for goods where the lift is not altogether plain or when there are no plain healds, as the selvedges must of necessity weave plain so as to bind the weft every pick in the picking. These mail sides are always required for twills or satins, but in the case of leno or mercerized stripes which have plain grounds they are not needed, as the selvedge ends are drawn through the plain staves.

Dropping healds.—Say 76s healds are the commonest used at a place, almost invariably all the looms being on that count, and an order was taken for 68 ends per inch cloth, which means that 64s healds will be required instead of ordering healds specially for that order, the drawers would put up 76s healds and drop 12 healds per inch (or let 12 healds per inch remain empty), but of course the drawer is paid as if he were drawing in every heald, for his work of counting. The right reed has to be used in all cases.

With these explanations of local terms and usages the following standard list of prices for twisting and drawing-in is given. Prices are stated in English pence (1 penny = 2 cents):

Drawing gray.

(The reed is understood to mean counts.)

Plain 4 staves up to 80s reed, 5½ pence per 1,000 ends.
Plain 4 staves, 81s to 90s, 5½ pence per 1,000 ends.
Plain 4 staves, 91s to 100s, 5½ pence per 1,000 ends.
Plain 4 staves, over 100s, ½ penny per 1,000 ends extra; every 10 counts or 20 ends or fractional part thereof.
Rags with skeleton staves, 5½ pence per 1,000 ends; without skeleton staves, 5½ pence.

Handkerchiefs, 2 in a width, 5¾ pence per 1,000 ends; 3 in a width, 6 pence.

Dhooties, colored up to 1 inch average, 5½ pence per 1,000 ends; to 2 inches average, 5¾ pence; over 2 inches, as pattern sheet; colored stripes, 1 penny extra.

Dhooties, gray, 5½ pence per 1,000 ends; 3 or 4 runs, 1 penny per beam extra; 5 or 6 runs, 1½ pence per beam extra; stripes, if uncrammed, ¼ penny; if crammed, ½ penny; if odd drafted, ¾ penny extra.

Taped stripes, plain, all yarn counted, 5¾ pence per 1,000 ends.

Taped stripes, plain, if crammed, 6¼ pence per 1,000 ends.

Dobbies, mail sides up to 16, mailed healds, 6¼ pence; 17 to 50, 6½ pence; 51 to 100, 6¾ pence; over 100, 7 pence.

Dobby-dhooties, 3 or 4 runs, 1½ pence per beam extra; 5 or 6 runs, 2 pence.

Doria, with or without dhooty border, groundwork 1 in a dent, 8 pence per 1,000 ends; 3, 5, 6, or 7 staves, twills or sateens, 2 in a dent, 7 pence per 1,000 ends; 3 in a dent, ¼ penny extra.

Velvets to be classed among 3, 5, 6, and 7 staves, 7 pence per 1,000 ends.

Rep or rep headings, 4 staves, with or without dhooty border, 6 pence per 1,000 ends.

Rep or rep headings, with clearance stave, 6½ pence per 1,000 ends.

Lace handkerchiefs, with staves, to be paid stave list, with doup healds, under leno price.

Drilletts and sateens, 3, 5, 6, or 7 staves (3 ends in a dent), 7¼ pence per 1,000 ends.

Stave work, 5 to 7 staves, 7 pence per 1,000 ends; 8 to 13 staves, both included, 8 pence; 3 ends in a dent, ¼ penny.

Stave work, above 13 staves, ¼ penny per 1,000 ends per stave extra, all drafts.

Silk-bordered dhooties, up to 1 inch of silk, 5¾ pence per 1,000 ends; over 1 inch to 2 inches, 6½ pence; over 2 inches, 7 pence.

Checks, 4 staves, 60s and 40s twist, ground work part one in a dent, same price as dorias, 8 pence per 1,000 ends.

Taped doria, striped dobby border, up to 16 mail healds, 6¾ pence per 1,000 ends; 17 to 50, 7 pence; 51 to 100, 7¼ pence; over 100 mails, 7½ pence.

Taped doria stripes, if split drafted, or crammed and part one in a dent, 8 pence per 1,000 ends.

Taped doria stripes, if dobby border, up to 16 mail healds, 8½ pence per 1,000 ends; 17 to 50, 8¾ pence; 51 to 100, 9 pence; over 100 mails, 9¼ pence.

Bitting healds, up to a 70s reed, 1 penny per inch first 2 inches, ½ pence per inch after.

Bitting healds, over 70s to 100s reed, 1 penny per inch all through.

Bitting healds, over 100s, 1½ penny per inch all through.

Bitting healds, after they are twisted, 1½ pence per inch all counts.

Double beams, 3 pence for each extra beam.

Cable cords, as taped stripes, 6¼ pence per 1,000 ends.

One end in a dent, 9 pence per 1,000 ends.

Bitting-up dobbies after they are twisted, 5¾ pence per beam.

Extras for counts of reed according to plain table in all sorts, except ordinary plain one in a dent.

Extras above drawing prices.

Boat or mail sides, 1 penny per side for all sorts.

Splits, 1 penny per beam if woven with doup healds.

Umbrellas, double and single cords, same price as dhooties.

Dropping healds, 1, 2, 3, and 4 counts nothing after full counts paid for.

Drawing old healds, if prepared or cleaned by drawer, half penny per 1,000 ends extra.

Denting a warp over, same price as twisting, except one in a dent, which shall be 6 pence per 1,000 ends.

Over 80s to 100s warp, one-fourth penny per 1,000; over 100s, half penny extra.

Any sort where the drawer or twister drops dents, up to and including 50 dents, shall be dropped for nothing; over 50, they shall be paid for each dent left empty (including fractional parts of 50) as though an end had been put in.

Drawing colored work.

Plain, one color, 6¼ pence per 1,000 ends.

Doria striped dobbies, up to 16 mail healds, 7¾ pence; 17s to 50s, 8 pence; 51s to 100s, 8¼ pence; over 100 mails, 8½ pence; with dhooty border, 1 penny per 1,000 ends on dhooty price.

Dobbies, 5 staves to 7, 8 pence; 8 to 13, 9 pence; above 13 staves, one-fourth pence per 1,000 ends per stave extra.

Day work when drawing not less than 8 pence per hour for drawers.

Twisting gray.

Plain 4 staves, 26s to 80s twist, 4 pence per 1,000 ends.
Coarser than 26s and over 80s to 90s, 4¼ pence per 1,000 ends.
Plain 4 staves, over 90s to 100s, 4½ pence per 1,000 ends.
Plain 4 staves, over 100s, 5 pence per 1,000 ends.
Six staves Jeanettes, as stave work.
Dhooties (3 pence per warp extra for cramming or uncramming; if not crammed, 1 pence per beam extra), 4 pence per 1,000 ends.
One end in a dent, 4½ pence per 1,000 ends.
Handkerchiefs (2 in a width, 1 pence extra per beam; 3 in a width, 1¾ pence per beam extra, with a corresponding pattern), 4 pence per 1,000 ends.
All stave work, including other than 4 staves, 5½ pence per 1,000 ends.
Herring bones, with flats in, 5½ pence per 1,000 ends.
Tape stripes, 4 staves, plain (all yarn counted), 4¾ pence per 1,000 ends.
Jacquards; extras for counts of warp according to plain table in all sorts.

Extras for twisting above list prices.

Splits, ½ penny per beam.
Umbrellas, both double and single cord, as dhooties.
Double beams, 3 pence per beam extra.

Colored twisting.

Plain, one color, 4½ pence per 1,000 ends.
Day work, when twisting, not less than 6 pence per hour for twisters.

Definitions as to split drafting.

When the ends which are drawn through the healds on one hook are not put in the same dent, this constitutes split drafting.
When there are more than two healds in one dent, this constitutes cramming, but it would not apply to warps which are drawn 3 or 4 ends in a dent throughout the warp.
In fixing prices for any sort not provided for in the list, the basis shall be calculated from the 5½ pence for drawing and 4 pence for twisting per 1,000 ends; fractions up to the eighth to be given to the employer, over the eighth to be given to the workman.

DHOOTIES FOR INDIA.

VALUABLE BRITISH EXPORT TRADE—COST OF MANUFACTURE.

As India's importation of such cotton cloths as are comprised under the heading of dhooties, chadars, scarves, and sarries increased from 529,720,000 yards in the fiscal year 1905 to 565,770,000 yards in 1906, about 98 per cent of which were furnished by England, the methods of their manufacture may well be studied by American cotton manufacturers. Mr. Whittam supplies further weaving details concerning the production of these goods in Lancashire. Samples of dhooties, etc., mentioned in the report, are available to American manufacturers who will write to the Bureau of Manufactures for them.

Dhooties comprise an important percentage of England's immense trade in cotton goods with India. How considerable a proportion this is may be gathered from the importation of cotton goods of British origin by the province of Bombay. During the six months ending June, 1905, a total of 6,528,851 pieces were recorded, 1,874,401 of which, or slightly over 28 per cent, being dhooties made up of 1,412,757

pieces classed as gray and 461,644 pieces white or bleached. The white goods are woven from gray yarns, the colored borders and headings being composed of yarns which will stand bleaching. It may be pointed out that this great trade is absolutely untouched by American manufacturers.

Dhooties are ornamented shirtings. They are gray and colored striped, which, in gray, are not of a very varied character, being often nothing more than tape edges formed by "cramming" gray yarn at each selvedge. Where colored yarns are used stripes of one or more colors are introduced at the sides, varying in width from one-eighth of an inch up to 4 inches, and in design from plain to elaborate figures. The cloths run from 22 to 50 inches in width and are generally 40 yards long. Each piece is made up of a number of scarfs, a scarf being the length between two headings. A range of 22 and 23 inches makes what is known as a 2-yard scarf. Others are: 24 and 25 inches, making a 2½-yard scarf; 26 and 28 inches, making a 3-yard scarf; 29 and 32 inches, making a 3½-yard scarf; 34 and 35 inches, making a 4-yard scarf, and the higher widths make 4½ and 5 yard scarfs. Thus a piece 44 inches wide would contain 4 double 5-yard scarfs. The counts of yarn commonly used are 30s to 50s warp and 36s to 70s filling, although better qualities are made from yarns as fine as 120s.

BORDERS AND HEADINGS.

There is an immense variety of borders, starting with the common "gray tape," and gradually merging into fancy woven colored styles, known to the trade as "dobby sides." These colored dobby borders are woven in figures, some of the designs being registered by the shipping merchant. In the very finest qualities silk stripes are sometimes used. I am sending a batch of small clippings showing many styles of borders, together with a lot of original manufacturer's order sheets, giving full particulars, with small samples attached. Many of these were made out nearly twenty years ago, and it speaks well for the stability of the trade to find the firm making goods of the same design and construction to-day. Dhooties are not made for stock, but are invariably woven to the merchant's order. The sizing runs from heavy, say 100 per cent, to pure, or about 6 per cent.

Headings are standardized to a slight extent, but aside from the recognized standards there are innumerable variations in color, length, and weave. They are usually put in by hand, and the additions to the list price of weaving for doing this are given in this report. The standards are known as "large sarrie headings," "small sarrie headings," "Madras headings," "Madras and Bombay headings," and "Calcutta headings." Many other and similar headings are shown by cloth clippings attached to the order sheets mentioned.

DHOOTIE TERMS.

As dhooties are unknown fabrics to American manufacturers, further explanation of trade terms is needed to elucidate the technical description to be given of the more common or standard types of these goods.

Calcutta headings are almost invariably made with red filling, say 22s or 31s counts, according to coarseness of warp and weft used for cloth, and ordinary filling for between the bars. An ordinary 5-bar

Calcutta heading is as follows: Two picks red; 4 picks gray weft; 2 picks red; 4 gray weft for first part; 12 red for center; then reverse of first part. Of course they vary a little, but the foregoing is most usual. Calcutta borders in dhooties are usually figured, with red predominating.

Madras headings are very similar to Calcutta headings, red being the chief color used, but they are usually a little longer, although the borders of these goods are very often not so wide as the borders for Calcutta headings. Madras borders are very often formed by pointed figures.

Bombay headings are made of chocolate color and red as a rule; sometimes all one color or either of these; they are often made with 8 to 14 even bars of alternate colors.

Large sarrie headings.—In the commonest of these the shuttle is to be changed by hand 36 times; consequently weavers do not like them, and manufacturers will only make these very often if the buyer will give another order of some other kind along with them. The style of these headings is varied in different cloths by varying sizes of bars. Red is the main color used. The center part of these headings is made from 1 inch to 12 inches long.

Madras sarrie headings are like ordinary small sarrie headings, except that instead of some of the red bars, bars of gray cord filling are put in.

Flush ends in dhootie cloths are ends which float over or under occasionally, in order to form the figure in the dobby border.

Rep headings are those in which are put two picks in one shed, whether they go all across the piece or if only the border is lifting, so that there are double picks in the border and single picks in the other portion of the cloth. Very often where rep headings are to be put in the ends in the border are drawn in double or two per heald.

LIST PRICES FOR WEAVING.

The many possible variations in the construction of dhooties, both as to headings and borders, makes the piecework price list a complicated one. Remembering, however, that they are based on the "standard list," and that all additions are made thereto, will enable any American manufacturer to readily arrive at the price his Lancashire competitor will have to pay to the operative weaver.

Plain dhooties.—There are two systems of paying for dhooties. The first is 12 yards, 8 per cent above list (minimum); 11 yards, 9 per cent above list; 10 yards, 10 per cent above list; 9 yards, 11 per cent above list; 8 yards, 12 per cent above list; 7 yards, 13 per cent above list; 6 yards, 14 per cent above list; 5 yards, 15 per cent above list; 4 yards, 16 per cent above list; 3½ yards, 18 per cent above list; 3 yards, 19½ per cent above list; 2½ yards, 21½ per cent above list.

The second system is 10 per cent upon all lengths without any deduction being made for width of cloth. For each extra runner in plain dhooties an allowance of 2½ per cent shall be made, such allowance to be added separately.

Dobby dhooties.—Sixteen flush ends or under, with Calcutta headings, to be paid 20 per cent on list. Sixteen ends and under, with Madras headings, to be paid 30 per cent on list. Sixteen flush ends or under, dobby dhooty borders, with extra runner, shall be paid 30 per cent for borders and 5 per cent for runner, providing the average number of dobby ends in borders and runner should exceed 16 in each border; extras for headings as per list. Example: Sixteen flush ends in each border and 28 flush ends in the runner border; total number of flush ends, 60. Divide the 60 ends by the 3 borders; average ends, 20.

All other dobby borders to be paid 30 per cent, with prices for headings as per an illustrated colored list, agreed upon October 1, 1904, by the operatives and employ-

[Copy of this colored list will be loaned to American mills on their application to

the Bureau of Manufactures.] For each extra runner in dobby dhooties an allowance of 5 per cent shall be made, such allowance to be added separately. Dobby dhooty or dhooties with a plain strip weave, to be paid as per stripe list with percentages for dobby dhooty or dhooties extra.

All classes of gray stripes and cords in which the groundwork is two ends in a dent, and made from one beam and one count of yarn, to be paid 4 per cent and reedage; if made from two beams, 7½ per cent and reedage; if made from three beams, 12½ per cent and reedage. If the cloth is part one end in a dent, then the percentage shall be 7½ per cent, 11 per cent, and 16 per cent, the reed to be found by the number of ends in the warp. All classes of stripes and cords made from two or more counts of yarn, and made on one or two beams, to be paid 7½ per cent and reedage; if the cloth is part one end in a dent, the reedage shall be found by dividing the difference between the actual reed used and the number of ends in the cloth. For each additional beam 5 per cent to be added.

Dhooty headings—Extras for 40 short-stick yards.—That the list price of Madras headings be ¼d. for 12 headings, ½d. for 14 headings, 1d. for 16 to 20 headings, 1½d. for 21 to 30. Large sarrie heading, with 1 shuttle 15 bars, to be paid 1d. extra. Small sarrie heading, with 1 shuttle 6 bars, to be paid ½d. extra. Madras sarrie heading, with 2 shuttles 11 bars, including cord, to be paid ½d. extra. Small sarrie and Calcutta headings put in as one heading, viz, 4 and 4 together to be paid ½d.; 5 and 5, ¾d.; 6 and 6, 1d.; 7 and 7, 8 and 8, and 10 and 10, 1½d., in the nearest multiple to 40 yards.

Bombay chocolate heading, with two shuttles 14 bars, to be paid 1d. extra for 16 headings. Madras chocolate heading, with 4 shuttles 18 bars, including cord to be paid 1d. per cut extra for 8, 1¼d. for 10, 1½d. for 12, 1¾d. for 14, and 2d. for 16. Red Madras heading, with 2 shuttles 10 bars, including cord, to be paid ¼d. for 12 headings, and ½d. for 14, 1d. for 16 to 20 headings, and 1½d. for 21 to 30.

VARIOUS KINDS OF HEADINGS.

What is known as 9-bar Bombay heading, with 1 shuttle 11 bars, to be paid 1d. extra for 16 headings. Bombay chocolate heading, with 3 shuttles 14 bars, to be paid 1d. extra for 16 headings. Ordinary Calcutta heading, with 5 bars, no extras. Bombay heading, with 4 bars, 16 ends and under, 20 per cent, with extras for headings as per Madras headings: ¼d. for 12, ½d. for 14, 1d. for 16 headings, in the nearest multiple to 40 yards.

Bombay heading, with 5 bars, 16 ends and under, 20 per cent, with extras for headings as per Madras headings: ¼d. for 12, ½d. for 14, 1d. for 16 headings in the nearest multiple to 40 yards. Bombay heading, with 4 bars and 2 bars, 16 ends and under, 30 per cent, with extras for headings as per Madras headings: ¼d. for 12, ½d. for 14, 1d. for 16 headings in the nearest multiple to 40 yards. Bombay heading, with 5 bars and 2 bars, 16 ends and under, 30 per cent, with extras for headings as per Madras headings: ¼d. for 12, ½d. for 14, 1d. for 16 headings, in the nearest multiple to 40 yards.

Bombay heading, with 7 bars and 2 bars, 16 ends and under, 30 per cent, with extras for headings as per Madras headings: ¼d. for 12, ½d. for 14, 1d. for 16 headings, in the nearest multiple to 40 yards. Bombay heading, with 9 bars and 2 bars, 16 ends and under, 30 per cent, with extras for headings as per Madras headings: ¼d. for 12, ½d. for 14, 1d. for 16 headings, in the nearest multiple to 40 yards. Borders over 16 ends, 30 per cent, with the above extras for headings.

One-sided dobby or apron cloths, with 16 flush ends and under, to have 10 per cent on plain cloth prices; over 16 flush ends to have 20 per cent on plain cloth prices; dobby leno sides, 2½ per cent extra.

Combined colored and gray stripes in which the gray yarn is crammed, or requires two beams to form a stripe, 10 per cent in addition to the dhooty price shall be paid. Colored stripes with not more than two dents of gray yarn crammed at each side of the colored stripe to be paid 5 per cent in addition to the dhooty price; extra ends, to make the colored or gray stripe, to be counted in ascertaining the reed. When the gray yarn crammed exceeds two dents, 10 per cent extra shall be paid.

PRICES FOR DHOOTIES WITH REP HEADINGS.

1. Basis, plain cloth as per uniform list, net.
2. For 8 full headings, ½d.; for 10, ¾d.; for 12, 1d.; for 14, 1¼d.; for 16, 1½d.; for 18, 2d., and for 20 full headings, 2½d., in the nearest multiple to 40 yards. Any larger number than 20 to be paid in proportion to the price for 20 headings.
3. Every required change of shuttle for putting in of headings to be paid one-tenth of a penny per change above ten changes in each half heading.

4. All half headings containing up to 200 picks, inclusive—that is, picks "repped," to be paid ½d. per cut extra; 201 to 400 picks, 3 farthings per cut extra, over 400, picks "repped," a farthing for each 100 or fraction thereof.

5. Five-sixths of all picks "repped" to be reckoned as lost picks and included in calculations.

6. If there are more than 20 colored picks, plain weave, in a half heading—that is, picks not "repped," these to be counted and paid for at the rate of 20d. for every 20 picks or part thereof above 20 picks.

7. All the foregoing extras are based upon 16 headings in 40 yards; any less number to be paid in proportion.

8. For plain borders, 5 per cent extra to be added to plain-cloth price.

9. Dobby borders, with 16 flush ends or under, 15 per cent to be added on plain-cloth price; all other dobby borders, 25 per cent.

10. When extra staves are used above 4, in plain or dobby borders, 6 per cent extra to be paid up to 8 staves; above 8 staves, 1 per cent per stave up to and including 12 staves, and for 13 staves and above, 2 per cent per stave to be added; clearance stave not to be counted.

11. Figured cloths, with dobby dhooty borders, to be paid for staves, based on plain cloth as per uniform list. The cloth woven with the number of stave figures, with percentage to be added, is: 4 to 8 staves, 5 per cent; 9 staves, 8 per cent; 10 and 11 staves, 12 per cent; 12 to 14 staves, 14 per cent; 15 and 16 staves, 16 per cent, and 17 and 18 staves, 18 per cent. If the lattice is to be turned, 3 per cent more to be paid. These extras to be added separately to the percentage allowed for flush ends and headings. This clause is subject to the 7½ per cent addition.

GRAY DHOOTY HEADINGS.

The cost runs over and above the 10 per cent or scale payment, reckoned to the nearest multiple in 40 yards, as follows for 7 to 9 goal headings:

Headings put in by hand: ¼d. for 12 headings; ½d. for 14 headings, and 1d. for 16 to 20 headings. Headings put in by motion: $\frac{3}{16}$d. for 12 headings; ⅝d. for 14 headings, and ¾d. for 16 to 20 headings.

On 11 to 15 goal headings:

Headings put in by hand: ⅝d. for 12 headings; ¾d. for 14 headings, and 1½d. for 16 to 20 headings. Headings put in by a motion: ¼d. for 12 headings; ½d. for 14 headings, and 1d. for 16 to 20 headings.

TAPE-BORDERED CLOTH—SHAWL HEADINGS.

Tape-bordered cloth without pattern, over one-fourth of an inch in width up to three-fourths of an inch, shall have 2½ per cent added to plain cloth price, together with extra ends in reeds. Tape-bordered cloth with tape or cord pattern shall have 5 per cent added to plain-cloth prices with extra ends in reed. Plain gray shawl headings, one goal, to have 3 per cent over plain cloth prices.

Dhooties are worn as loin clothes by the native males of India and are not used outside the East Indies and near-by territories. Here is, however, a fertile field lying fallow awaiting cultivation by American merchants and manufacturers. Many American mills are so equipped that they can at once enter this gray and colored plain-border cloth trade without change in organization. Others having dobby attachments to their looms could readily cater for the fancy dobby demand. Large orders are usually given, as will be seen from the order slips, and thus the common objection to certain sorts of fancy export trade that it is too small in volume disappears. Those cotton manufacturers of the United States who look ahead will anticipate the next period of depression by at least informing themselves as to their ability to successfully compete in this class of goods.

DHOOTIES AND VENETIANS.

WEAVING COSTS IN ENGLISH MILLS—SELLING PRICES OF CLOTH.

There are many classes of fabrics made in Lancashire for foreign markets which are little, if at all, known to American manufacturers. There are also practices and processes in cotton manufacturing common and important here which are strange to American mill managers. Among these is the practice of "heavy sizing" many standard varieties of cloths for export.

For the last three decades heavy sizing has been done in Lancashire with honesty. The merchant when ordering such goods specifies the sley and pick, counts of warp and filling, length and width, and finally ordering the piece to be brought to a given weight, any deficiency in the weight of the yarns used being made up by sizing added to the warp. In many countries there is a widespread demand for cheap cloth which can be met by sizing and in no other way. When colored borders in dhooties are sized it is found that sago as an adhesive material in the size gives better results than either wheaten flour or farina.

As shown in the sample sheets forwarded with a previous report, gray dhooties are often woven with colored borders, the pieces being afterward bleached. Obviously the colors must be such as will not deteriorate in the bleaching process. The colored yarns used must be dyed with suitable materials or the required shades will be materially damaged. Some common colors, which are used successfully, are: Aniline blacks, buff (cutch), brown (cutch), indigo blue, Turkey red, Turkey purple, Turkey yellow, and Turkey chocolate. Neither basic nor direct dyes should ever be used even for "topping" purposes.

MANUFACTURING PARTICULARS.

The numbers one and two sample dobby dhooties forwarded are alike in construction except that one has a red border and the other a border woven from lilac-colored yarns. The particulars and manufacturing cost of these are as follows: Reed, 62; pick, 48; warp, 26s; filling, 36s; 32 single and 32 to 40/2 colored ends per border; width, 45 inches; and length, 40 yards per piece. Weaving and all other costs except material per piece are equivalent to two and three-fourths times weaving piecework and amount to 40 pence; 5.5 pounds warp at 9.6 pence per pound, costs, 52.8 pence, and 3.1 pounds filling at 9.8 pence per pound costs 30.4 pence, making a total of 123.2 pence, or 10 shillings and 3 pence ($2.50) per piece. The quantity of size in the warp is 30 per cent.

The plain woven bordered dhootie sample No. 3 is constructed as follows: Reed 60; pick 48; warp 36s; filling 42s; 40 colored ends of 20s per border; width 35 inches; length 40 yards; and weaving piecework 10.7 pence. The total manufacturing cost is two and one-half times that of weaving, not counting material, which makes it amount to 27 pence; while 3 pounds warp at 10¼ pence per pound costs 30.75 pence; add for cost of colored yarns 3.50 pence; and 2.1 pounds filling, at 10.2 pence, 21.42 pence; making a total of 82.67 pence; or 6 shillings and 7 pence ($1.60) per piece. The quantity of size in the warp is 15 per cent.

Considering the stability of this trade and its volume, together with the fact that a large number of American mills can practically, without cost for changes, make these fabrics, and also that the market has no preferential tariff barriers, American cotton manufacturers ought to give the matter their most serious consideration.

VENETIANS.

Six samples of "Venetians" are also forwarded, four of which are dyed and finished, while two are in the "gray" as they leave the loom. These goods are principally used for linings and are also used extensively in the British home trade as well as in that of China, Japan, and South America. They are made from yarns of good quality, and, as is customary here, prices are made per piece and not per yard as in the United States. This plan allows of closer bargaining than is possible on the price per yard basis. The gray goods are sold to the shipper on practically a cash basis, the terms being 4 per cent off for cash in fourteen days; no extension of time beyond this being allowed. The gray cloth is dyed for the purchasers' account, the color in greatest demand being known as a "Marquise" black, for which the dyer charges 2 pence farthing (4½ cents) per yard. Some markets demand a narrow colored selvedge, made from worsted yarns, the colors of which are unaffected by the cotton-dyeing process, as shown in sample A.

Practically all warp yarns are made from Egyptian cotton and in the better and medium qualities they are two-ply. The best grades also have two-ply Egyptian filling. The construction and particulars of the six samples are:

Sample A.—Venetian "Marquise black," colored, worsted selvedge: Reed 208, picks 72 per inch; warp 80s/2; filling 50s/2 Egyptian; weaving piecework price, 2 shillings 11½ pence per piece; width, 34 inches; length, 64 yards short stick; selling price, 52 shillings per piece, less 4 per cent for cash in fourteen days.

Sample B.—Venetian gray: Reed, 136; picks, 64 per inch; warp, 80s/2, Egyptian; filling, 30s/1 American; weaving piecework price, 1s. 8d. per piece; width, 34 inches; length, 64 yards; selling price per piece, 28 shillings, less 4 per cent fourteen days.

Sample C.—Venetian gray: Reed, 136; picks, 80 per inch; warp, 36s/1, Egyptian; filling, 25s/1, American; weaving piecework price, 2s. 2½d. per piece; width, 34 inches; length, 64 yards; selling price, 30 shillings per piece, less 4 per cent fourteen days.

Sample D.—Venetian Marquise, black: Reed, 168; picks, 72 per inch; warp, 80s/2, Egyptian; filling, 25s/1, American; weaving piecework price, 2s. 2d. per piece; width, 34 inches; length, 64 yards; selling price in the gray, 40 shillings per piece, less 4 per cent fourteen days.

Sample E.—Venetian Marquise black: Reed, 136; picks, 80 per inch; warp, 80s/2, Egyptian; filling, 25s/1, American; weaving, piecework price, 2s. 2½d. per piece; width, 34 inches; length, 64 yards; selling price in the gray, 34 shillings per piece, less 4 per cent fourteen days.

Sample F.—Venetian solid Marquise black: Reed, 168; picks, 74 per inch; warp 80s/2, Egyptian; filling, 30s/1, Egyptian; weaving, piecework price, 2s. 1½d. per piece; width, 34 inches; length, 64 yards; selling price in the gray, 44 shillings per piece, less 4 per cent fourteen days.

As supplementary examples of the range of dhooties for the East Indian market I have sent to the Bureau of Manufactures two samples, each containing 2 full scarves. These goods are made to be bleached. The red color in the headings and borders of the one and black in the other are such as to withstand deterioration in the ching process. They are lightly sized in the gray (10 per cent), are filled considerably after being bleached. By this means the

bare and open look, as woven, is changed into a full, nice-feeling fabric. While the bulk of the trade is in coarser cloths, American manufacturers of medium-count cottons might turn their attention to these lighter weights. The scarves are made slightly shorter than 4 yards each, so that after the stretching in bleaching the finished scarf will measure full 4 yards. Borders and headings are of such a simple character that they can be incorporated without outlay for dobbies, drop boxes, or other loom attachments. The warp yarns are spun from Egyptian cotton and the filling from American.

Details of construction are here given:

Warp, 50s, Egyptian; filling, 54s, American; width, 37 inches; length of piece, 45 yards; sley, 60 per inch; pick, 50 per inch.

Weight of filling per piece	pounds	2
Weight of warp per piece	do	2.5
Size in warp per piece	do	.25
Total weight of piece	do	4.75
2½ pounds 50s Egyptian filling, at 36 cents		$0.90
2 pounds 54s American filling, at 24 cents		.48
2½ times weaving piece-work price		.60
Selling price per piece		1.98

The piece-work price for weaving a 45-yard piece, including the extra paid to the operative for putting in the colored and gray heading yarns by hand, is 24 cents, and the 36 cents added in the item "2½ times weaving" covers winding, warping, slashing, management, waste, supplies, and all general charges, as well as profit.

When home trade is congested many of our mills could quickly turn to the making of such cloths, and in this way much of the pressure to sell which periodically upsets the domestic market could be removed. The trade once obtained, followed up systematically and persistently, would impart a healthier tone to our cotton manufacturing industry.

COTTON SPINNING.

EQUIPMENT OF BRITISH MILLS—AVERAGE WAGES PAID.

In the following report Mr. Whittam explains the equipment of cotton-spinning mills and the average wages paid:

Considering the cotton industry from the field to the user of the finished products of the loom, the United States is unfortunately about as far behind as an exporter of finished cottons as she is in the lead as a producer of the raw material. As a result of the short crop and high prices of the season of 1903–4, the leading cotton manufacturing countries of Europe, led by Great Britain, are making more or less strenuous efforts to grow enough cotton in their colonies to place the several home countries beyond dependence on the American yield. There seems to be a loose sort of pact between them, to the extent that they will at least keep each other advised of the reasons leading to the success or failure of their more important experiments. As soon as this new cotton-growing move was finally determined upon the sev-

eral European associations began a thorough investigation of conditions of cultivating, ginning, packing, and merchandizing in the American cotton belt. They turned naturally to the country which dominated the raw-material market to glean practical information as to what to do and what to avoid doing in their new ventures. For equally potent reasons American cotton manufacturers must look to England, the country which has, since the introduction of the factory system, dominated the world's exports of manufactured cottons, for a knowledge of facts pertaining to foreign trade which will enable them to successfully compete for a larger share of the exterior turnover. If they can not meet the quality and price of their competitors the task is a hopeless one. There are many items entering into the cost of production and marketing, some of which were covered in previous reports. Cost of machinery and wages paid constitute two important factors in this relation.

COST OF MILL EQUIPMENT.

In Lancashire yarn-spinning mills usually contain many more spindles than is general in the United States. They also, as a rule, make a narrower gauge of counts, involving less stopping of machinery to make changes from one number or quality to another. This means that they have an advantage over us, everything else being equal, of a reduced cost per pound for general expenses. I append the prices for machinery paid by one of the large new spinning mills in this (Lancashire) area. The equipment is not yet completely installed. The figures may be taken as those prevailing about eighteen months ago. They also represent those then charged by a maker who usually obtains a slightly higher price than other firms.

Hopper bale breaker	$865.00
Hopper feeder	388.80
Exhaust openers with lap attachments	1,485.00
Single lappers (40-inch laps)	680.40
40-inch revolving flat cards	486.00
Drawing frames per delivery	66.00
Slubbing frames, 106 spindles each; per spindle (8½-inch gauge, 10-inch lift)	9.17
Intermediate frames, 136 spindles; per spindle (6¾-inch gauge, 10-inch lift)	7.51
Roving or jack frames, 204 spindles; per spindle [a] (4⅜-inch gauge, 7-inch lift)	4.86
Warp mules per spindle, 1,068 spindles, each (1¾-inch gauge)	2.96
Filling mules per spindle, 1,236 spindles, each (1⅛-inch gauge)	2.75
Spinning frames per spindle, 360 spindles, each (1½-inch gauge, 5½-inch lift)	2.43

Asking prices are now about 25 per cent more than the foregoing, and many machine builders will not deliver under two years.

AVERAGE WAGES.

In considering the matter of wages paid in spinning mills I have not taken into account isolated instances of unusually high or low

[a] 8 of the roving frames are occasionally altered in this mill to run as a process speeders or jack frames.

rates, but have taken the highest and lowest commonly paid for the several kinds of work. They range as follows, per week of fifty-five hours:

Men in mixing room	$3.60 to $4.80
Men in opening room	5.04 to 6.72
Card room:	
Oiler and belt piecer	6.00 to 6.72
Waste man	5.04 to 5.76
Strippers and grinders [a]	5.28 to 6.24
Lap carriers	4.20 to 4.44
Drawing tenters [b]	4.80 to 5.04
Slubber tenters	4.80 to 5.40
Intermediate tenters	4.80 to 5.90
Roving tenters	4.56 to 5.04
Jack or fine frame tenters	4.32 to 4.56
Doffers	1.44 to 2.08
Carding overseers	9.60 to 13.20
Under carding overseers (second hands)	7.20 to 8.40
Combing overseers	9.60 to 12.00
Comber tenters	4.20 to 4.56
Frame spinning:	
Spinners	3.84 to 4.56
Doffers	1.68 to 2.16
Overseers	8.40 to 9.60
Under overseers	6.72 to 7.68
Mule spinning:	
Spinners (or minders)	8.64 to 16.80
Piecers	3.12 to 5.04
Creelers, or back boys	1.80 to 2.52
Bobbin carriers	4.44 to 5.40
Overseers	9.60 to 13.20
General workers:	
Machinists	9.60 to 12.00
Machinists' apprentices	.96 to 2.40
Warehouse foreman	6.72 to 12.00
Warehouse laborers	4.32 to 5.04
Warehouse cop packers	4.32 to 6.00
Engine tenders	8.40 to 14.40
Boiler firemen	5.04 to 7.20
Bookkeepers	7.20 to 12.00
Superintendents	12.00 to 65.00

There is a wide difference in the earnings of mule spinners. This is due to many conditions—the piecework price prevailing in the district, quality of cotton and twist per inch, speed of spindles, length of mules, and the physical condition of the machines and their furnishings.

The foregoing rates uncover the strongest reason for our present insignificant position in the yarn-exporting trade. There are, however, countervailing conditions in many of our coarse and medium yarn mills which overcome them and enable us to meet our competitors on the numbers and qualities in greatest demand if we make the selling attempt in the proper way.

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[a] In Lancashire grinders do not "set" the cards. This work is done either by the overseer or his assistant.

[b] In some mills two tenters and a "doffer" run a slubber and a pair of intermediate frames. Under these conditions the wages of each tenter average about $3.75 per week.

SIZING GRAY COTTONS.

BRITISH METHODS—POINTERS FOR AMERICAN MANUFACTURERS.

Special Agent Whittam, writing from Manchester, furnishes the following details as to how British manufacturers size cotton goods for their enormous export trade:

Before American cotton manufacturers can expect to secure and retain any appreciable share of the foreign trade of the nonmanufacturing world they must first learn where the largest buyers and users reside, and, next, the kind of fabrics they demand. Having this information, the selection from the many varieties of exportable cloths of those best suited for production by the cotton factories of the United States becomes a matter for careful consideration. To the well informed practical man it is known that gray goods can be turned out most readily by the greater number of American mills. Keeping this in mind, it is instructive to find that during the calendar year ending December 31, 1906, British exports to India were made up as follows:

Of gray cloth, 1,418,024,100 yards, or 62 per cent of Britain's total exports of this class of fabrics for the year, and gray cloth formed no less than 37 per cent of her total exports of cotton cloths of all kinds. Of bleached cloth, 518,037,500 yards, or 30 per cent of the total exports of bleached goods. In printed goods, 341,227,900 yards, or 30 per cent of the printed cloth outgo. In dyed cloth, 229,379,300 yards, or 20 per cent of the dyed fabric exports. India's total takings from England were 2,506,668,800 yards, which is 40 per cent of the entire British exports of cotton cloth. Not only did this great market absorb such a large proportion of British cloth exports, but it also imported 39,860,800 pounds of cotton yarn from Lancashire, equivalent to 19 per cent of the United Kingdom's total exterior trade in this commodity.

To make clear the preponderance of gray cloth over other sorts the British shipments to India show the following percentages: Gray, 56.6; bleached, 20.7; printed, 13.6, and dyed, 9.1. If the purchases of China, Java, Manila, and Japan are added to the total for British India the astounding total of 3,436,400,000 yards of cloth and 54,700,000 pounds of yarn are obtained as the year's exports to the Orient. These represent 55 per cent of England's foreign sales of cotton cloth and 26 per cent of her outgo of yarn. The figures emphasize the importance of India as a customer, as against India's imports of 2,506,668,800 yards the other oriental countries bought but 929,731,200 yards. And of this total, excluding the undeterminable quantity concealed in the 50,105,000 yards of gray goods recorded as going to all other countries not enumerated during the year 1906, 342,935,100 yards are grouped under grays, being 37 per cent of the outgo.

BULK OF GOODS HEAVILY SIZED.

This class of goods is important to the managers of American cotton mills, first, because it shows the greatest field for trade expansion

and one as yet practically untouched and certainly unworked by the textile concerns of the United States; and, second, because more than half the enormous takings can be profitably made by them and shipped direct from the loom to the foreign purchaser. The fact that no preferential tariff operates against America in any of the markets enumerated is of vital importance. Having thus shown the Oriental demand for cloth and pointed out that gray sorts are most popular, it must be added that many of the grays sent to the East are equally standard fabrics in many other countries. It is likewise important to know that the vast majority of these are either "medium" or "heavily sized." One British authority states that "It is not an exaggeration to say that two-thirds of the looms of Lancashire are engaged in manufacturing goods the yarns of which carry over 40 per cent of size." Expressed in figures, this means that some 460,000 Lancashire looms are turning off the class of goods with the sizing of which this report deals. It is thus seen that as Lancashire exports far more manufactured cottons than the combined total foreign shipments of all other countries, the statement just cited clearly indicates the direction in which American efforts for exterior trade expansion must first be directed.

CLASSES OF GOODS SIZED.

American weavers have had generations of experience in the production of what are known here as "pure-sized" cloths, but as yet they have no notion of the details of the process of sizing goods with from 20 to 200 per cent. Before going into the practical details of work such as this, the standard, medium, and heavily sized gray cloths manufactured in England and the leading countries to which they are sent are now given:

Dhooties, as stated in a previous report, vary from fine "pure sized" to coarse heavily sized fabrics. Most of the trade, however, is in cloths which fall in the medium and heavily sized shirting class. Their use is confined almost altogether to India.

Export shirtings are usually heavily sized, some sorts carrying over 150 per cent of size in the warp. They are purchased freely by merchants in India and are also taken by China, Aden, Turkey, Japan, Manila, and Singapore. The pieces are 37½ yards (long stick) and from 38 to 50 inches in width, although the demand for pieces over 45 inches wide is not great. Sley and pick range between 48 by 48 and 64 by 60. Particulars of standard makes and their selling prices on February 14, 1907, were:

Warp and filling or weight of piece.	Width.	Length.	Sley.	Pick.	Price per piece.
	Inches.	*Yards.*			
30s-30s	38	37½	48	48	$1.44 to $1.65
30s-30s	38	37½	64	56	1.47 to 1.68
8½ pounds	39	37½	64	60	1.71 to 1.95
9 pounds	44	37½	64	60	1.89 to 2.16
10 pounds	50	37½	64	60	2.16 to 2.40

T cloths form another group of heavily sized cloths, their lengths being always 24 yards. They are shipped mostly to Latin America, Japan, China, India, and southwestern Europe, the regular makes being:

Weight per piece.	Width.	Length.	Sley.	Pick.	Price per piece.
	Inches.	*Yards.*			
4 pounds	36	24	48	40	$1.04 to $1.18
6 pounds	32	24	56	56	1.16 to 1.34

Mexicans are made up into 24-yard pieces and carry considerable quantities of adulterants in the warp. They vary from 28 to 39 inches in width and are distributed in the Orient, India, and South and Central America. Typical fabrics of this class are:

Weight per piece.	Width.	Length.	Sley.	Pick.	Price per piece.
	Inches.	*Yards.*			
7 pounds	30	24	72	72	$1.44 to $1.64
8 pounds	39	24	72	72	1.58 to 1.82

Domestics and drills.—The former are medium to heavy sized cloths, while drills range from high medium to heavy sizing. They are shipped to the East, Southern Europe, and South America, while domestics go principally to the Levant, Italy, Turkey, Egypt, and South America, 28 to 39 inches wide, 60 to 96 yards long, warp from 18s to 26s, and filling from 18s to 40s, 54 to 60 sley and pick square.

Madapollams are another medium-sized sort taken by Southern Europe and Latin America. India, however, is the largest consumer of this sort. They are 24 yards long, 28 to 32 inches wide, and from 40 by 40 to 48 by 48 sley and pick. The price of middling American cotton on February 14, 1907 (Liverpool classification), was 12.06 cents. This will enable American manufacturers to more readily arrive at their competitive efficiency.

AMERICAN MANUFACTURERS NOT COMPETING.

At the present time the United States produces nothing that will meet the requirements of the user of sized goods. Neither in "feel" nor appearance do any of the regular products of American mills approach those goods of competitors which have an established reputation of long standing. Although many Americans export grays or browns, as they are known in the States, despite their higher intrinsic worth due to their comparative freedom from adulteration, they sell reasonably near the same prices as British medium sized cloths, yet, as will be obvious to every manufacturer, the added weighting material in the foreign commodity materially reduces its cost to produce, and so long as the purchaser is not only satisfied but prefers the weighted fabric on account of its fullness and feel, American manufacturers can not hope to grapple with their foreign rivals with any satisfactory measure of success unless they turn their attention to similar manufacturing.

Not only for a considerable period after the introduction of the factory system and the power loom, but for centuries before that time, the sizing of warps before weaving was universal. The only object then was to impart sufficient strength to the threads to enable them to withstand the friction and strains incidental to their manipulation in the loom. This plan with the same object in view is followed in modern manufacturing establishments where the products are to be bleached or dyed. Later it was discovered that by modification of the size mixing, fabrics to be sold and used in the gray could be given a certain desirable "feel" and appearance which would enhance their popularity with the consumer.

Subsequently, as British production increased in volume and new outlets were imperatively sought it was found that cloth to come within the purchasing power of millions earning very scant wages could not be produced from pure cotton. This led to the gradual increase in the proportion of size formerly put on the warp until the deception became evident, leading at length to a system which still holds at this writing between the foreign dealer in the country where such goods are used and the shipper in the country of origin. The latter gives the maker full particulars of the counts of warp and filling, sley and pick, width and length, and either the weight of the finished piece or the per cent of size to be added. In this way the abuses and dishonesty of thirty or forty years ago have been almost entirely corrected and abolished.

PERMANENT DEMAND.

For the last two or three decades this important section of the trade has been carried on with nearly complete freedom from fraud. For many purposes, especially in tropical and semitropical countries, there is a permanent demand for "brown" cotton cloths at prices which can only be met by size adulteration, and as these goods are never washed they serve for certain purposes fully as well and possibly better than the open and bare pure sized sorts of equal counts of yarn and ends per inch. In the United States one occasionally hears the justice of this practice questioned, but enough has been said in these reports to justify the making of cotton stuffs to meet an existent demand, especially when it is known that the proportion of weighting material present has a direct bearing on the price paid. To a consumer earning but a few cents a day a difference of one cent a yard on a number of yards is an important consideration, and such a reduction can only be brought about by the addition of cheaper substances than cotton.

There is a slow but noticeable decrease in the output of the heaviest sized cloths, due it is said, to the slowly increasing purchasing power of the people who use them. They are thus able to pay slightly more for goods containing more cotton and less foreign matter. The pith of the question is, however, that for very many years the consumption of weighted goods will be enormous and that they can be made by a large number of American mills at a figure which will yield a profit to their owners and place the cloths so made at least on a price level with the products of those who now control the markets in which the goods are sold.

This rather lengthy but necessary introduction leads up to a consideration of the materials used and methods employed in applying them by the makers of weighted cloths in Lancashire. Many substances are used which are little, if at all, known to the cotton trade of America, yet no considerable difficulty should be encountered in obtaining them, since they are nearly, if not all, made and marketed in the United States for use in other industries.

APPLICATION OF SIZE.

Size is applied to the warp in the "slashing machine" in all mills making uncolored goods, and it will require few if any changes—and these of a minor character—to the "slashers" now working in American mills to enable them to take up the manufacture of medium and heavy sized cotton textiles. About the only capital outlay required is for suitable size-mixing apparatus, which will be described further on in this report.

In English practice sizing is classified under four heads, each embracing fabrics carrying a certain range of size percentages, the grouping being:

(1) "Pure" sizing carrying up to 15 per cent on the warp.
(2) "Light" sizing carrying 15 to 30 per cent on the warp.
(3) "Medium" sizing carrying 30 to 55 per cent on the warp.
(4) "Heavy" sizing carrying 55 per cent and upward on the warp.

"*Pure*" *sizing.*—As the system of "pure" sizing is well nigh the only one followed in the cotton-weaving departments of American mills, and as it does not come directly within the scope of this report, only brief mention will be made to this group in which the principal aim is to add as little foreign matter as possible to the yarns consistent with good weaving. Most English-made cloths of this character are either dyed, printed, or bleached after they leave the loom. In the bleaching process all the added size materials are removed; any excess consequently not only increases the cost of sizing to the manufacturer but at the same time the expense of bleaching is appreciably increased. In American mills both coarse and medium-weight fabrics which are sold and used in the gray or brown state are also "pure" sized. This for reasons already enumerated makes their manufacture more costly than the heavily weighted products of foreign competitors, resulting too in an abridgment of America's competing power in foreign marts.

"*Light*" *sizing.*—Under the head of "light" sized goods are included all that have from 15 to 30 per cent of size added to the warp. The materials of which these mixtures are composed are generally the same as those included in a batch prepared for "medium" and "heavy" sizing, the difference being in the changed proportions of the ingredients; the lighter mixture would include less weighting and deliquescent substances and more adhesive matter. Some weavers, however, prefer a size containing only flour of one sort or another, tallow or other softener and water for this group.

"*Medium*" *sizing.*—It has the double object of increasing the weight, and also in many instances imparting to the cloth the equally important characteristic of a good "feel," and is taken to cover percentages of size ranging between 30 and 55 per cent of the weight of

the warp. Here again, as in "light" sizing, variations in the proportions rather than in the nature of the materials used in "heavy" sizing are made to obtain the desired results. So that from the several proportions of ingredients to be shortly given for getting different percentages, manufacturers will be able to select the starting point for any efforts they may make to cater for this great trade.

"*Heavy*" *sizing.*—This group might be conveniently subdivided into "heavily" sized and "very heavily" sized cloths. Into the first subdivision fabrics carrying from 55 to 100 per cent would enter, while the second subdivision would include all percentages over 100. Indeed, some Lancanshire made fabrics contain as high as 200 per cent of weighting matter. Inasmuch as an increase in sizing means but changes in proportions of materials, the comments made upon the treatment of this group will apply in a greater or less degree to the other groups previously outlined in brief.

SOFT TWIST YARNS USED.

When percentages over 55 are put on warps the primary object is to produce a piece of goods having a better and fuller body and appearance, at the same time presenting a more "clothy" feel than could possibly be made at the same cost from pure cotton. Considering that in the manufacture of the very heavily sized sorts 1 pound of warp yarn may have to carry anywhere from 1 to 2 pounds of size, it is not surprising to find that particular attention must be given both to the raw cotton employed and to the quantity of twist put in warps intended for the purpose. American cotton of average length of staple is mostly used, although at times some other and harsher growth is mixed with American in order to get a more oozy and less tightly twisted thread.

In Lancashire it is not often considered advisable to use frame-spun yarn as warps for goods to be very heavily weighted, the reason alleged being the fact that frame yarns are harder twisted than those from the mule, making it plain that the body of the former thread has a more solid character and can for this reason neither receive nor retain so large a weight of adulterants as the softer spun mule product. Again, counts being equal, the more tightly spun thread must unavoidably have a less diameter than one softer twisted; hence, there is a correspondingly smaller surface over which to spread the size. As the ingredients of the size are mostly such as can not be dissolved they are unable to enter and become a part of the cellular structure of the component fibers, and are therefore at the best merely carried on the surface of the yarn and in the spaces between the individual fibers. Lancashire makers of cloths of this kind have for many years striven to turn off gray goods which shall have as full a character as is obtainable from the numbers of yarns used, and as this, they say, is only possible with comparatively soft-twisted warps, it is evident that a portion of the otherwise attainable strength and attendant good weaving properties must be sacrificed, and the makers must perforce put up with all the extra work in both preparatory and weaving operations that this loss of strength necessarily entails.

Notwithstanding the foregoing prevalent British opinion, the writer is firmly under the impression that a stronger size mixture

applied to frame spun warps would produce approximately any desired percentage and at the same time fit existing American conditions. Not only so, but the superior weaving qualities of frame yarn would enable automatic looms to be used in the production of the goods, and there would then be no question of the ability of very many of American weaving establishments to quickly command a valuable share of the foreign trade in gray fabrics.

Substances almost without number for use in sizing have been offered and tried from time to time. Many secret preparations under fancy names have proved of little or no value, and their use is by British experts generally attributed to ignorance of the fundamental scientific principles underlying the operation and objects of the process. When considering the value of a material for use as a size ingredient its price must be taken into account, for costly products are debarred. Nor can anything be used without trouble and loss, which will either affect the weaving detrimentally or be responsible for damage to the goods developing after they leave the loom. Materials used are classified as follows, according to the work they are to perform in successful sizing, as adhesive, weighting, softening, deliquescent, antiseptic, and coloring. In each group many materials may be included, the most common of which will be named, particular attention being paid, however, only to those which experience has demonstrated to be most suitable.

CLASSIFICATION OF MATERIALS.

Adhesive materials.—In this class are wheaten flour, farina, cornstarch, sago, soluble starch, and dextrin. Of lesser importance are rice starch and flour, and tapioca. Adhesive ingredients form the body of the mixing and enable the yarn to carry the size. Their glutinous properties strengthen the yarn chiefly by laying all projecting fibers and fixing them firmly on the surface of the threads.

Weighting materials in medium and heavy sizing: China clay (kaolin) is used almost exclusively for obtaining the required weight, although Epsom salts, Glauber's salts, gypsum, and barites are occasionally employed.

Softening materials are many, but tallow is used more often than all the other substances, the more important of them being soaps, glucose, turkey red oil, palm, cocoanut, cotton-seed and castor oils; stearin, Japan and paraffin waxes. All the foregoing have oleaginous properties and as the adhesive and weighting matters, when put on the warp and dried, would rub off, besides making the yarn harsh and hard, the softener in the batch is introduced to prevent these faults occurring, besides giving to the warps a pliable, smooth, and soft feel.

Deliquescent materials are used to keep the sized yarn pliable by attracting moisture to the fibers. This prevents the abnormal loss of flour and mineral adulterants which would otherwise happen by the friction of reed and harness in the loom rubbing an abnormal proportion of the size into powder. These substances are, therefore, in a sense also softeners. Chloride of magnesium is invariably used in heavy sizing, although chloride of calcium and glycerin are sometimes resorted to; the calcium is, however, commonly looked upon as dangerous to good results.

Antiseptic materials.—Owing to the presence of a large proportion of flour on the yarn, aided by a substance having the power of attracting moisture, there is a strong tendency for mildew growth to develop on the finished cloth. In order to prevent or destroy the growth of this fungi "antiseptics" are introduced in the mixture. Chloride of zinc is used almost exclusively in the class of goods we are considering (medium to heavy sized "grays"), although cresylic acid, salicylic acid, carbolic acid, and thymol are occasionally used for the lower percentages.

Coloring materials.—Ordinarily coloring materials are employed to counteract the darkening action of all sizing substances on the yarn, as well as to overcome the yellow shade natural to spun and woven cotton. Blues are used for the purpose. Recently a practice has been introduced with the object of tinting yarns spun from American cottons to imitate cloth made from Egyptian. Other colors are also given to the warp by tinting the size to reduce the cost of cloths which were formerly dyed, blues, browns, and yellows being the commonest shades.

Appended are prevailing prices on a few of the principal sizing materials delivered to the Lancashire cotton mill:

China clay (good quality), $10.56 per ton (2,240 pounds).
Sago flour, $2.76 per hundredweight (112 pounds).
Farina (imported German), $2.88 per hundredweight (112 pounds).
Sizing soap, $6.96 per hundredweight (112 pounds).
Chloride of zinc, 102° Tw, $1.62 per hundredweight (112 pounds).
Chloride of zinc, 98° Tw, $1.50 per hundredweight (112 pounds).
Chloride of magnesium, $14.88 to $15.60 per ton (2,240 pounds).
Chloride of calcium, $9.60 to $10.80 per ton (2,240 pounds).
Analine blue for tinting, $2.16 to $3.12 per hundredweight (112 pounds).
Bismarck brown for tinting to imitate Egyptian cotton, $1.44 per pound.
Paraffin wax, 4¾ cents per pound.

Any firm beginning the manufacture of weighted fabrics should make provision for regularly and scientifically testing the materials used. For, in spite of their comparative cheapness, less expensive materials are not infrequently mixed with some of them to increase the profit of the maker. Many of the substances debased by this means will injuriously affect the yarns to which they are applied. Analysis of a simple nature, such as can be carried out by one devoid of previous chemical training, will uncover the practice just mentioned and indicate the kind and quantity of the adulterants. Tests should also be made to ascertain whether each consignment comes up to a predetermined standard of quality and strength. Subsequent comment on the mixing of size batches will bear on the importance of testing.

MATERIALS FOR SIZING.

In Lancashire it is said that experience has proven wheaten flour to be the best adhesive material for general sizing purposes. Formerly it was held by some that starches, despite some of their known inferior properties, were preferable because of their less liability to mildew. This is clearly a fallacy, for the growth of fungi either on the cotton or any constituent of the size mixture can always and with certainty be prevented by the intelligent use of antiseptics. Much of the value of wheaten flour depends upon its correct treatment prior to the injection of the finished sizing mixture into the "size box" of the slasher.

Corn starch is often mixed with wheaten flour in medium and heavy sizing, about 25 per cent of the former being usually blended with 75 per cent of the latter. This course is adopted where it is required to produce a cloth with a harder feel, or for reasons of economy, the mixture costing less than pure wheaten flour. Corn flour is seldom used owing to a difficulty in breaking up its granules by boiling, the antiseptics being therefore unable to come into sufficiently intimate contact effectually to prevent mildew. The other flours and starches are of too little importance to merit attention in connection with the subject under examination.

CHINA CLAY, KAOLIN, ETC.

As china clay has come into such general use as weighting material as to almost entirely exclude other things, except where they are occasionally mixed with china clay, it is important that the features to be noted when selecting this substance for weaving purposes be well understood. The material should have a greasy or unctuous feel, it should be free from grit, and have a uniform color. This clay has supplanted other substances on account of its exceeding smoothness, its ready assimilation with other ingredients, and high specific gravity. It is quite as essential to have a clay of excellent quality as to use good flour, and when once a high-standard sample has been selected it should never be deviated from. That this is an important point is evident from the wide differences which exist in the physical properties of the many brands on the market. Variations in weight, feel, and appearance will unavoidably arise when a different—but possibly equally good—brand suitable for lower or higher percentages is substituted. The nature of clays differs to such an extent that some are quite suitable for medium or light work but altogether fatal to good work in heavy sizing, owing to a peculiar harshness they impart to the extra-weighted warp. On the other hand, there are clays which give quite as good results in light, medium, and heavy work.

The amount of water it takes to make a mixing of a given degree of "twaddle" varies very considerably. From all of this it is clear that the selector must exercise great care in selecting a china clay to answer a given purpose. When grit is present in the clay it is not only directly responsible for worse weaving, but indirectly this trouble is aggravated by the gritty particles rapidly wearing out the reeds and harness during weaving. Inferior color usually denotes inferior quality, and this has led unscrupulous firms to add sufficient blue to impart to such clay the whiteness of better qualities. Occasionally traces of iron are found in clay, sometimes in adequate amounts to produce iron stains on the cloth, thus injuring its value.

China clay is boiled to separate it into the finest possible particles, the time required depending upon the character of mixing being prepared. Where relatively a large volume of water is used the boiling period is shorter, as in light and medium sizing. From one to eight hours is the time generally found sufficient. There are large deposits of china clay in the manufacturing districts of the Southern States, many of which are, no doubt, high enough in quality for sizing purposes if they were treated so as effectually to remove all objectionable impurities.

The use of Epsom's and Glauber's salts has been largely abandoned in gray cloth sizing. They are, however, extensively used in weighting bleached and colored cloth and yarns. Barytes, having a higher specific gravity than China clay, has been used in heavy sizing, but its harsh and gritty nature causes the rapid deterioration of reeds and harness, besides imparting these properties to the woven cloth. It is also difficult to fix on the yarn. It may therefore be left out of consideration, as a substance not to be recommended.

TALLOW AND OTHER SOFTENERS.

Of the many softeners used in sizing, tallow is by far the most common, nor is there a size ingredient adulterated so heavily and with such frequency. Such impurities as the chlorides of magnesium and calcium, common salt, chalk, soap, barytes, water, cotton-seed oil, bone fat, starch, paraffin wax, mineral oil, and other cheap and deleterious materials are used for the purpose.

Foreign matters such as soap, fats, water, and cotton-seed oil are in themselves softeners and do not damage the cloth, while starch, salt, and the chlorides are introduced to enhance the dealer's profit by increasing the weight. Mineral oils and paraffin wax, however, tend to damage the cloth. As the chlorides of magnesium and zinc are always used in heavy and medium sizing, and tallow having from practical use established its superiority as a softener when used in the same mixing with them, it is not surprising to learn that nearly every one of the numerous attempts to introduce and maintain concoctions broadly known as "tallow substitutes" have resulted in dismal and sometimes costly failures. Nor will soap of any kind compare with tallow (pure) as a softener. Pure tallow should vaporize at from 240° F. to 320° F., the higher temperature being reached in very cold weather and the lower during summer. Its melting point should range between 110° and 118° F., and its flash point should not be below 500° F. Tallow coming within this standard and otherwise pure will set hard and firm on the yarn, increasing its smoothness.

Soaps should never be used in heavy sizing, for while they assist in dissolving the fatty ingredients of the mixing and make them mix well and also cause the china clay to boil "thinner" and spurt less, the magnesium and zinc chlorides always present in the mixing decompose the soap and deprive it of its useful properties, at the same time making the size lumpy and diminishing the antiseptic powers of the zinc salts.

Paraffin wax is used on gray goods only as a softener. Although it does not mix well it has a high melting point, and, setting firmly upon the thread, increases its smoothness. Taken all round it is not so suitable as tallow, and cloths sized with mixings in which the substance has been included have been known to turn a dirty yellow shade when warehoused for a considerable time.

As previous reports have explained the importance of the "dhootie" trade and stated that many sorts are weighted, it may here be explained that the yarns forming the colored borders of many of these goods are sized separately and not run with the gray yarn forming the body of the fabric. They are dressed with the smallest possible percentage. Paraffin wax is useful in a mixing for this purpose,

whose base would be sago flour. This mixture will effectually lay the fibers of the yarn and improve the weaving. The colored yarn for borders should also be dried more thoroughly than the weighted gray warp of the fabric. This will retard the development of mildew on the border, and while the zinc chloride can not be used on colored yarns mildew may be prevented from developing on them by the addition of six ounces of salicylic acid to every 100 pounds of adhesive material.

DELIQUESCENT SUBSTANCES.

Chloride of calcium is in such general favor that little need be said of other deliquescent materials for goods having over 40 per cent of size in the warp. Besides its affinity for moisture it also acts as a softener, although if used for this purpose in too large quantities at the expense of a correct quantity of tallow, the yarn will become so damp that the parts of the loom with which it comes into contact will rust and cause iron stains to appear on the cloth. This material is usually delivered in a solid state and made into a solution at the mill. Twaddlé's hydrometer is the instrument universally used for ascertaining the strength of sizing solutions and mixtures. It records the specific gravity of liquids heavier than water and when tests are being made the liquid should always be at a temperature of 60° F. The degrees of "Twaddle" are designated by Tw. It is usual to make the solution of this chloride "Twaddle" 56°; it will then contain 24½ per cent of solid, and one gallon will weigh 12.8 pounds and have a specific gravity of 1.28. About 66° Tw. should be the highest to which magnesium chloride solution is brought, for the reason that above that strength a portion of the salt is liable to crystallize and attach itself to the sides and bottom of the tank. This substance must never be used unless a sufficient quantity of some antiseptic is employed to counteract the tendency to mildew.

ANTISEPTICS.

It is well to remember that whenever such highly hygroscopic ingredients as chloride of calcium or chloride of magnesium are used some antiseptic must accompany them, otherwise mildew would almost certainly develop and ruin the goods. Chloride of zinc is about the only antiseptic used in heavy and medium sizing, not only for its efficiency as such, but partly because it is to a certain extent a softener. It also adds substantially to the weight of the yarn. It is ordinarily sold to cotton manufacturers in solution and in this form it not only may contain many impurities, due to its method of manufacture, but it is peculiarly susceptible to adulteration with other chlorides of a cheaper sort, some of which will seriously interfere with its antiseptic value. Other chlorides frequently found in the solution of zinc salts are those of magnesium, calcium, sodium (common salt), iron, and Glauber's salts. Many Lancashire manufacturers now require from the dealer a declaration of the exact composition of every purchase of zinc chloride solution. They thus guard against fraud and probable damage to their goods, for mildew sometimes develops while the cloth is in the loom, but more often after it has reached its destination abroad. It is plain, therefore, that the

manufacturer can not afford to risk losses due to manipulation by the adulterator of the only sure safeguard against his bugbear. A nice discrimination is needed to decide the proportion of this antiseptic which will prevent damage, for it is certain that too much of it has a detrimental effect upon the weaving. From 3½ to 4 gallons of the chloride is used to each 280 pounds of flour and this it is said is sufficient to preserve cloth from mildew under normal usage, but if the goods are packed in a damp condition or afterwards receive a wetting, this strength may not answer. Liquid chloride of zinc in solution is generally sold at 102° Tw, at which strength a gallon will weigh 15.1 pounds and have a specific gravity of 1.51. In the solid state 45 pounds of chloride of zinc are equivalent to 100 gallons of solution at 102° Tw.

SIZE MIXING.

There are so many methods of mixing materials and modifications of their previous treatment that they can not all be named. Some mills admittedly get better results than others, yet their secret will not be found in any special and unknown substances used in the batch, but rather in the purchase of materials of uniformly good quality and their careful mixing in proper proportions. To illustrate the latitude that exists, one authority says that "softeners will form from 7 to 14 per cent of the total weight of the size; antiseptics (chloride of zinc), 8 per cent of the flour or starch used; magnesium chloride, 5 to 10 per cent; but that both of the latter quantities may be exceeded when it is desired to increase the weight of the yarn by this means."

Wheaten flour is fermented for many reasons, although the practice is not now so common as formerly. Some goods are made to which 80 per cent of size is added, but to which antiseptics are not allowed to be applied, and under these conditions bad weaving would be inevitable unless the flour were first fermented for a long period. Others ferment flour to prevent harshness in the cloth, others to lessen the tendency to mildew, but where antiseptics can be used it is said that fermentation is altogether a wasteful process. Flour is fermented usually to separate the starch granules, but this can be done more thoroughly by steeping the flour with the chloride of zinc than by the long, costly, malodorous, and dirty process of fermentation. Further advantages of steeping are freedom from acid development and no loss of either gluten or starch—whereby the adhesive power of the flour is wholly retained, the china clay more firmly fixed in the yarn—which is also itself strengthened. Putrefactive decomposition not seldom occurs during fermentation, but it is impossible in the steeping process.

The risks of leaving out a portion of the zinc solution are reduced almost to the vanishing point—an important consideration. Most material is the fact that the ingredient with the greatest tendency to mildew is brought into intimate contact with the antiseptic before the strength of the latter is diluted by the addition of the remaining portions of the size. The flour, chloride of zinc, and water should steep for two weeks, after which it is ready for use. The proportion of water required is from 25 to 30 gallons to 280 pounds of flour. There are of course strong advocates of each method, but it seems to

the writer that bringing the substance most susceptible to fungus growth into close contact with the materials which can prevent their development is the more rational method. It is obviously useless to first boil the mineral china clay with the antiseptic, yet the practice is often followed. As showing the divergence in view of different manufacturers on the fermentation method some firms limit the process to three days—which is worse than useless—while other concerns allow the process to continue for six weeks or more.

COMPOSITION OF MIXINGS.

In the face of the multitude of ingredients offered as suitable for sizing purposes, the more successful concerns confine themselves to the use of materials whose compositions are known to them, at the same time keeping their mixtures as simple as possible. Combinations of material are generally made to get a certain percentage on the cloth, but a mixing which would give 60 per cent on a fabric 50 by 40, would by no means put the same per cent on yarn of similar counts woven 72 by 72. Mixings must be modified to meet the construction of the cloth to which they are to be applied. No one mixing can be stated as certain to give a fixed percentage, for slight differences in ingredients or their treatment, weather, and the humidity of the atmosphere in the weaving shed will all cause differences in the result one way or another.

The mixing for 30 to 40 per cent is: Water, 135 gallons; chloride of magnesium, 60° Tw., 9 gallons; tallow, 45 pounds; flour, 440 pounds; and china clay, 330 pounds, chloride of zinc having been first steeped with the flour in the proportion previously given; blue to suit.

The mixing for 50 per cent (coarse yarns) is by percentages: Wheaten flour, 51½; china clay, 31; tallow, 10½; chloride of zinc, 3½; and chloride of magnesium, 3½.

The mixing for 100 per cent is by percentage: Wheaten flour, 23; china clay, 31; chloride of magnesium, 15; chloride of zinc, 11; tallow, 15; gum, 2; and glycerin, 3.

The mixing for 140 to 160 per cent is thus made: Having first steeped the flour, zinc chloride, and water in the proportions mentioned for two weeks, an extra amount is added to counteract the tendency of the cornstarch to mildew. The ingredients are: Water, 75 gallons; chloride of magnesium, 35 gallons; china clay, 1,790 pounds; tallow, 230 pounds; flour, 340 pounds; cornstarch, 120 pounds; and chloride of zinc, 1½ gallons.

Notwithstanding explicit directions from the buyer of the cloth, giving counts of yarn, sley, and pick, and per cent of size, some weavers here often depart slightly from instructions to their own advantage. The writer came across an instance the other day where 22s warp and 24s filling were specified, while 24s and 26s were being used, the otherwise resulting lighter weight being made up by extra size. Quantities to be mixed depend on several conditions, one being the weight of yarn to be sized. Allowance must be made for the loss of size by being rubbed off during weaving; and as all the mixture
[illegible] not be used, some must be left over.

To illustrate—if 4,000 pounds of yarn are to be sized so that it will retain 80 per cent of size, parting with 10 per cent in the loom and leaving 5 per cent in the beck, it will require 95 per cent of size, or 3,800 pounds; or, say, of wheat flour, 874 pounds, equaling 23 per cent; sago flour, 304 pounds, or 8 per cent; China clay, 1,672 pounds, or 44 per cent; softeners, 380 pounds, or 10 per cent; chloride of zinc, 190 pounds, or 5 per cent; and chloride of magnesium, 380 pounds, or 10 per cent.

ILLUSTRATIONS AND APPARATUS.

Another mixing to give up to 200 per cent is, by percentage, wheat flour, 30; China clay, 44; castor oil, 3; tallow, 8; chloride of magnesium, 8, and chloride of zinc, 7.

The apparatus required for preparing a mixing depends almost entirely on the goods to be produced and the number of looms. In heavy and medium sizing a receptacle for the chloride of magnesium and a tank for the clay must be provided and the entire plant should be arranged to avoid as much as possible carrying or lifting by the mixer. An excellent modern arrangement is shown in an illustration forwarded which is sufficiently clear to explain itself. [The illustration will be loaned to the textile trade by the Bureau of Manufactures.] It will be noticed that the apparatus is in a two-story building. A late type of beck for heavy sizing with overflow valve and a size pump attached is also shown.

After a mixing known to be suitable has been prepared there are many pitfalls into which the sizer may stumble when applying the size of the warp. Uniformity is the goal to aim at, and in order to attain it care must be taken to see that percentages and strength of the ingredients used are always the same and that they are subjected to the same treatment for each batch. The materials must be thoroughly and evenly boiled and the size delivered into the size box of the slasher at a uniform rate. It is also essential to regulate the speed of the machine to dry the yarn properly and uniformly.

Unless absolutely unavoidable the size for medium and heavy work should never be simply boiled in a small tank attached to the slasher before being introduced into the size box of the machine. The weaving qualities of the yarn are materially improved by a more suitable method. A large boiling tank for this purpose is the most approved plan, in order to enable the mixture to be boiled sufficiently thin to be pumped to the slasher size box. This carries the clay and softeners in more complete suspension and contributes not a little to greater uniformity in results.

OTHER DETAILS TO BE OBSERVED.

The weight of the finishing roll of the slasher has a direct bearing on the quantity of water to be used, a heavier roll requiring less water and a heavier size than a lighter one. It is found that with size of a suitable strength a heavy roll produces a better-looking finished cloth. Attention must also be given to the pressure of the squeezing rolls; if not enough, the warps will go on the weaver's beam too damp for satisfactory working in the loom.

Uniform drying is essential to good weaving, speed of machine and steam pressure in the cylinders regulating this. When a standard of dryness has been established for the warps every set of the

same sort should be kept to the standard. It may be taken that as the percentage of size is increased the amount of moisture to be retained in the warps as they leave the slasher should be greater.

Iron stains frequently occur on weighted goods. No matter how they arise, they cause loss and worry to the manufacturer. They generally develop either from impurities in the sizing ingredients, contact with rusty parts of the loom, or from water or black oil dropping on the cloth. All these evils should be guarded against as far as possible. Small quantities of common soda are sometimes added to neutralize any free acid the size may contain and prevent the formation of iron mold from this cause. Mildew can, as has been already shown, be almost certainly guarded against by the use of zinc salts in suitable proportions, coupled with intelligent sizing methods. Sizing is to the weaving department what carding is to the spinning of a cotton mill. At no stage from spinning to cloth can so much damage be done to the yarn as in the slasher. This statement applies with special force to heavy and medium sized work. Greater skill and experience is demanded from the man preparing warps for shirtings, T-cloths, domestics, and dhooties than from the one engaged in pure sizing. There are so many points to be constantly watched that the sizer should have sufficient expert knowledge drawn from long practical experience to determine by the "touch" of the yarn whether all the conditions essential to a first-class product are complied with. When the weighted warps reach the looms it is absolutely indispensable that they be woven in a humid atmosphere. The weaving of "very heavily" sized goods becomes practically impossible in an atmosphere at all approaching dryness.

I have thus briefly touched upon the most important aspects of cloth weighting as practiced in Lancashire, and am sending to the Bureau of Manufactures a piece of cloth which will give an idea of the average sorts, as the sample is sized to the extent of over 90 per cent of the weight of the warp. The particulars of the cloth are attached to the piece.

PATH OF LEAST RESISTANCE.

The American cotton trade has talked for years of the importance of expansion in the export of manufactured cottons, which are the greatest item in the purchases of every nonmanufacturing country. Through the class of goods dealt with in this report will be found the path of least resistance. A large and steady demand in many widely separated markets will, if assiduously and intelligently cultivated, bring a growth in our exports of such character as will prevent a repetition of the disastrous times which overtook our cotton industry during the Boxer outbreak in China, which was solely attributable to the fact that the bulk of our comparatively meager exports were sold in the Chinese market. In no country where these sized gray goods are extensively used is there any tariff charge or regulation against us which does not equally apply to every one of our competitors. Instead of new mills being laid out to either make goods suitable only for our home requirements, or to meet the demand in China for the restricted class of American cloths she es, it seems to me that they might more profitably be designed ıter the foreign "gray" trade, which is the largest, most stable, easily entered of any of the lines of cotton goods.

STEADY EXPANSION.

LANCASHIRE'S INCREASED OUTPUT—EXTENT AND VALUE OF EXPORTS.

Lancashire's staple industry has passed through another year of marvelous prosperity. The unparalleled success of the export trade in manufactured cottons was accompanied by steadier employment and increased wages to the operatives. These conditions, strengthened by the activity in mill building, have sensibly augmented the purchasing power of the workers in the cotton and cognate industries. Consequently the home trade has shown an increased demand for cottons. The projection of new mills still goes on. Recently capital was subscribed for two new spinning mills at Todmorden, Lancashire, to contain 120,000 spindles, and numerous additions are also being made to old-established factories.

A casual glance at the total of Britain's over-sea trade in finished cotton products is enough to show how she must dominate most of the markets in nonmanufacturing countries, while closer scrutiny of the returns discloses many matters which ought to command the attention of every American cotton manufacturer, and which every distributor of their products should study carefully.

In the subjoined tables I have converted the pound sterling into terms of American currency at the rate of $4.86, and the values and average prices quoted are all f. o. b. steamer. Grades of cloths are given as classified by the Board of Trade. Statistics for the last three years follow:

Exports of manufactured cottons from United Kingdom during the three last calendar years.

	1904.		1905.		1906.	
	Yards.	Value.	Yards.	Value.	Yards.	Value.
Gray cloth	2,033,983,300	$91,758,579	2,336,218,500	$106,596,314	2,325,752,200	$110,670,224
Bleached cloth	1,528,115,700	81,450,008	1,709,819,500	92,503,840	1,684,540,200	95,693,118
Printed cloth	1,036,733,000	61,025,611	1,053,674,000	61,126,781	1,131,596,600	68,835,728
Dyed cloth	992,987,700	77,186,034	1,097,071,900	83,963,703	1,119,406,000	91,216,922
Total	5,591,819,700	311,420,232	6,196,783,900	344,190,638	6,261,295,000	366,415,992
Yarn (pounds)	163,901,400	43,521,776	205,100,500	50,148,173	207,373,100	57,522,799
Miscellaneous manufactures		52,684,201		52,834,576		60,129,529
Grand total		407,626,210		447,173,387		484,068,320

Under the heading "Miscellaneous manufacturers" such articles as lace and patent net, stockings and socks, other kinds of hosiery, sewing cotton, and other manufactures unenumerated are included, the most important of these being lace and sewing cotton.

GROWTH OF THE TRADE.

The growth of the trade in the last two years has been truly phenomenal. The yardage of cotton cloth exported in 1905 exceeded that for 1904 by 604,964,200 yards, and the increase in 1906 over 1905 was 64,511,100 yards, a total increase for the two years of 669,475,300 yards.

The export of cotton yarns in 1905 exceeded that of 1904 by 41,199,100 pounds and 1906 exceeded 1905 by 2,292,600 pounds, a total in the two years of 43,491,700 pounds.

The value of miscellaneous cotton textile manufactures exported in 1905 over 1904 was $150,374, and that of 1906 over 1905, $7,294,952, a total in the two years of $7,445,326.

The increased value of all manufactured cottons exported in the past two years was $76,442,110.

During 1906 there was a net increase in the outgo of yards of cloth of over sixty-four millions, as shown. This was due to a considerably enlarged demand for dyed and printed fabrics. The increase in these colored cloths was, however, at the expense of a falling off in the shipments of gray and bleached goods.

The following table shows the increase or decrease in 1906 as compared with 1905:

	Yards.	Value.
Gray cloth	−10,466,300	+$4,073,909
Bleached cloth	−28,279,300	+ 3,189,278
Printed cloth	+77,922,600	+ 7,708,961
Dyed cloth	+22,334,100	+ 7,253,219
Net increase	+64,511,100	+ 22,225,367

From this it is seen that in spite of the falling off in volume of gray and bleached, the value of the foreign shipments of these fabrics appreciated materially during the year.

AVERAGE PRICES OF EXPORTED CLOTHS.

On looking up the prevailing prices of raw cotton during 1906, our manufacturers will be able to form a general idea of the mean standard of the fabrics and yarns exported by England, after examining the average prices of the several classes of goods already mentioned, as given below:

	1904.	1905.	1906.
	Cents.	*Cents.*	*Cents.*
Gray cloth	4.51	4.56	4.76
Bleached cloth	5.33	5.41	5.68
Printed cloth	5.88	5.79	6.08
Dyed cloth	7.77	7.65	8.15
Total average	5.56	5.55	5.85

The average price per pound of yarns exported was, in 1904, 26.55 cents; in 1905, 24.45 cents, and in 1906, 27.74 cents.

It has been said times without number that the American cotton trade has but its own indifference to blame for the comparative insignificance of its sales to our neighbors, the Latin American Republics. And considering the great value of our purchases of commodities from these countries, the meager share we have in the sales of the most important of their imports is simply amazing to our competitors on this side of the Atlantic. To convey an idea of the standing of Great Britain with the republics to the South of the United States I have extracted from the official returns the figures representing the

volume of the British exports of cloth to all Latin American Republics for 1906.

	Yards.
Gray	83,370,000
Bleached	256,815,600
Printed	206,521,300
Dyed	208,770,500
Total	755,477,400

In South and Central America it is evident that bleached and colored goods find greater favor than the gray article. An examination of the statistics of American exports to South America will demonstrate how little we have yet done to obtain a reasonable share of the trade in the fabrics in greatest demand. The three South American countries which lead as importers of cotton cloth are the Argentine Republic, which bought 192,919,000 yards from Great Britain during 1906; Brazil, 131,503,700 yards, and Chile, 96,996,000 yards.

CUBA AND THE PHILIPPINES.

With Cuba British trade is of considerable, though diminishing, magnitude. The imports from England in 1906 were:

	Yards.
Gray cloth	8,129,500
Bleached cloth	24,418,600
Printed cloth	14,223,800
Dyed cloth	11,940,900
Total	58,712,800

This is a decrease of 17,039,700 yards, as compared with Cuban purchases from England in 1904.

With our own noncontiguous territory, the Philippine Islands, Lancashire's trade is of fair dimensions. She sent to the islands in 1906—

	Yards.
Gray cloth	1,150,000
Bleached cloth	17,532,200
Printed cloth	9,187,200
Dyed cloth	8,763,400
Total	36,632,800

Being an increase of 10,663,800 yards since 1904, but a decrease of 6,234,000 yards from her shipments of 1905.

THE ORIENTAL MARKET.

England's greatest market for cotton goods is India, and India is also the largest buyer of such merchandise of any country in the world, China not excepted. This, notwithstanding the nearly 6,000,000 spinning spindles and over 50,000 power looms at work in India, besides tens of thousands of hand looms.

Seeing that the market is unhampered by preferential duties of any sort, it is regrettable that we have made so little headway in that most fertile commercial field. Oriental possibilities may be grasped by an examination of England's trade in 1905 and 1906 with India, China,

Singapore, Java, Manila, and Japan. The total yards of cloth sold to the countries enumerated were:

	1905.	1906.
	Yards.	*Yards.*
Plain cloth	2,736,000,000	2,527,000,000
Dyed and colored cloth	472,700,000	443,800,000
Printed cloth	447,900,000	465,500,000
Total	3,656,600,000	3,436,300,000

Yarns were also sent in 1905 to the extent of 55,800,000 pounds, and in 1906, 54,700,000 pounds.

BRITISH EXPORTS AGAINST AMERICAN PRODUCTION.

The total production of manufactured cottons in the United States set against British exports of like commodities will serve to accentuate our neglect of long standing golden opportunities in foreign marts; a remissness all the more deplorable, seeing that, although we are handicapped by several comparative disadvantages, these are more than offset by the real benefits of a superior situation and certain more economical systems of interior factory operation, which enable our manufacturers to produce many important classes of goods of equal or better quality at competitive prices.

According to statistics relating to the cotton manufacturing industry in the United States, extracted from a bulletin recently issued by the Census Bureau, our total production in 1905 was valued at $450,467,704. This amount includes cotton manufactures of every kind, the two principal items being: Cloth, 5,070,028,520 yards; value, $320,382,367. Yarn for sale, 364,634,753 pounds; value, $79,939,687. The total value of the American output was but $3,294,000 greater than the total of English exports in 1905, and $33,600,000 less than the sum of British exports during 1906.

Further comparison uncovers another interesting result. During each of the two years our leading competitor exported considerably over a billion yards of cloth more than our mills produced for home and export trade combined. In 1905 Great Britain exported 6,196,783,900 yards, and the total production of the United States that year was 5,070,028,520 yards. In 1906 British exports aggregated 6,261,295,000 yards.

GRAY AND BLEACHED GOODS LEAD.

Adverting again to the detail of British exports, I find that both in volume and value gray cloths lead all other kinds, the next in importance being bleached goods. That these two sorts of fabrics preponderate is encouraging to most American mills which desire to obtain a share of the huge takings of foreign countries. The two varieties of merchandise named present fewer difficulties, both from manufacturing and mercantile considerations. Not only is this true, but the great bulk of American products come under these two heads. Hence our mills are in a position to enter this kind of trade at practically no [illegible] or expense for reorganization of machinery.

If we add to the British outgo the exports of cotton manufactures by Germany, France, Italy, Switzerland, and Spain, the immense possibilities for American expansion in cotton manufacturing are emphasized, and the magnitude of the trade becomes all the more striking.

American manufactures have demonstrated their competitive efficiency by their hold on the Chinese market in sheetings, etc. A close scrutiny of exportable goods and prices on this side leads one to the opinion that by adapting our fabrics and adjusting our mercantile methods to meet local customs and requirements of foreign users, we can multiply our exterior turnover many times. We have almost unlimited and constantly growing opportunities for trade growth. It remains for us to take hold of them in a practicable and determined way. The mere periodic "dumping" of surplus stocks in foreign markets during times of depression at home always does us more harm than good. Nothing will ultimately succeed except systematic persistence directed by those who have made a study and acquired a complete and practical knowledge of the details of both the goods required and trading conditions in foreign lands.

YARN EXPORTS.

THEY AMOUNT TO MORE THAN AMERICA'S TOTAL FOREIGN SALES OF COTTON GOODS—LESS THAN BRITISH YARN EXPORTS.

On the subject of England's cotton-yarn export trade Mr. Whittam reports that there will be a warm commercial contest between the leading cotton manufacturing nations to obtain or retain foreign trade within the next few years. He writes:

Although Lancashire has added 10,000,000 spindles to her productive capacity within a few years, the mill-building "craze," as it is commonly termed over here, is checked for the present—but not altogether arrested—only by the inability of makers of cotton machinery to guarantee delivery within a reasonable time. Most of them are said to be sold to the limit of their output for two years or more to come. Despite this a large new mill is projected nearly every week. Lancashire machine shops can turn out an enormous number of new spindles with their requisite preparatory machinery every week, and much of this is going to foreign countries.. Recently while at one works I met a gentleman from Japan and another from Sweden. Both bought machinery for distant delivery to be put in new factories. Japan, India, and Continental Europe are all witnessing unusual activity in cotton-mill expansion.

England ranks far ahead in the number of spindles operated, with the United States a poor second, but similarly quite outdistancing any other country. Mill building in America may be expected to increase very considerably when the many large hydro-electrical developments in the southern cotton manufacturing area are completed. Taking export figures for the United States from a report printed in a British paper, I find that our exports of manufactured cottons fell

off about $13,500,000 during 1906, as compared with 1905. This represents a loss of very nearly 24 per cent. During the same period Great Britain increased her total exports of manufactured cottons $36,800,000, which is equivalent to 85 per cent of the total cotton goods exports of the United States.

EXTENSIVE COTTON-YARN EXPORTS.

The United States has not yet succeeded in doing any foreign business in cotton yarns worth mentioning. Yet after piece goods these form the most important item in the trade. Considering English trade alone, and neglecting the continental export business in yarns, it is at first surprising to find that the year 1906 saw 207,373,100 pounds of cotton yarn, valued at $57,522,000, sent abroad from British mills. Another comparison shows that this is almost 34 per cent more than United States exports of all kinds of manufactured cottons, the excess being in money $14,500,000. The more important buyers of these British yarns are: Germany, 41,014,100 pounds, valued at $15,687,966; Holland, 39,752,700 pounds, at $8,119,689; Turkey, 15,378,000 pounds, at $3,143,195; and the Orient, including China, Japan, India, and Ceylon, 51,725,300 pounds, at $13,078,308.

In all probability part of the 24,945,700 pounds classified as sent to "other countries" were taken by some of the unclassified oriental markets. Of the 51,725,300 pounds taken by the East, China and Japan absorbed 11,864,500 pounds, worth $3,133,193, while British India, Ceylon, and the Straits Settlements purchases amounted to $9,945,115, representing 39,860,800 pounds. No record is kept of the counts of each shipment when its destination, weight, and value are taken. I can therefore only give the average price per pound of the exports to the several countries from which a general idea of the average character of the yarns taken by each market can be formed.

The average price per pound of yarns shipped by England during 1906 was: To Germany, 38.5 cents; Holland, 20.4 cents; Turkey, 20.4 cents; Orient, 25.2 cents; and to all countries, 27.7 cents. Subdividing the yarns sent to the Orient shows that the average price per pound paid by India, Ceylon, etc., was 25 cents, while the average for China and Japan reached 26.4 cents per pound.

As throwing further light on these values, I may point out that standard 32s, mule cops, warp twist, brought between 17 cents and 20¼ cents, a difference of 3¼ cents a pound during the year. Middling American cotton (Liverpool classification) rose from 10.58 to 13.18 cents per pound, a difference of 2.6 cents in the same twelve months.

FIVE MILLION SPINDLES BUSY ON EXPORT YARNS.

Examined in another way, the importance of the foreign yarn trade is emphasized. Taking the average price of 27.7 cents and allowing as near as one can for the ply yarns and combed qualities which this includes, the prices prevailing during the year lead me to fix upon 36s as approximating the average counts. And as mule spinning largely predominates in English mills, this would mean that over 5,100,000 spindles are constantly engaged in this country producing yarns for foreign markets. Its significance will be fully appreciated

by the American trade when it is remembered that this is more than half the number of spindles at work to-day in the Southern States.

Taking up the consideration of the yarns, I am sending to the Bureau of Manufactures a 10-pound bundle of 20s, frame-spun warp yarn, such as is shipped in large quantities to the East. It is spun from American cotton and was selling on March 12, 1907, at 19¼ cents per pound. Yarn in skeins or hanks is almost invariably shipped abroad in 10-pound bundles, and the sample sent shows the method of putting up. They are made by a small machine known as a yarn-bundling press, driven by power, but also supplied with a four-arm handle for working by hand when necessary.

Mule cops, 20s/1, spun from American cotton and worth 18 cents per pound, are also sent, together with skeins of 12s/1, frame-spun American cotton, worth 18¾ cents; 16s/1, frame-spun American cotton, price 18¾ cents, and 20s/1, etc., yarn from American cotton, worth 19½ cents. It is quite a common practice in Lancashire to charge the same price for yarns of the same quality and put up in the same form numbering 16s and below. A quill of 24s/1, frame-spun filling, American, is included, price 19¼ cents.

TWINER YARNS.

Two-ply yarns for weaving purposes are very often twisted in this country on a "twiner." This is a machine built on the principle of the self-acting mule, but so modified that it is a doubling instead of a spinning machine. Its advantages are that it twists direct from the cop or ring frame bobbin, thus doing away with the operation of spooling. The doubled yarn is built into a large cop which can be shipped anywhere, and thus dispenses in many instances with reeling and rewinding. It is obvious, then, that much expense is saved, and the cost of such fabrics as will admit of the use of twiner yarn is materially reduced. Not only is this so, but the actual operation of doubling by this process is so much less costly that twiner yarns of 20s/2 counts are usually sold quality for quality at 1 cent a pound less than ring-frame twisted skeins. I am sending two twiner cops 20s/2, price 22 cents, and two cops of better grade 20s/2, worth 22¾ cents per pound. The samples enumerated represent yarns which go in considerable volume to India, China, Japan, Holland, Turkey, and Egypt.

To illustrate the work done by a new mule, I include in my shipment several cops from a 133,000 spindle mule spinning mill just completed. The samples are of carded Egyptian and include 82s, "pin" (shuttle) cops, price 43 cents per pound; 44s, "bastard" or medium cops, price 37 cents per pound; 60s, warp cops, price 41 cents per pound. The name of the mill in which the several samples have been spun is in most instances given on the ticket attached to them.

SPECIAL FINE YARNS AND THEIR PREPARATION.

In order that American fine spinners may clearly understand the competition they are continually confronted with by the importer of fine yarns, I am also forwarding samples of high quality, fine spinnings. British-spun fine yarns for special purposes are sold to some

extent in the United States. The following-named yarns, with the prices per pound, will be of interest: 120s, super quality, C. S. I. shuttle cops, 74 cents; 80s, twist cops, one sample at 58 cents, another at 62 cents; and 70s and 60s, carded Egyptian warp cops, at 50 and 47 cents. These yarns are sold in single and different plys to the home trade and are also shipped to continental countries and the United States. Some numbers as fine as 80s go to India.

There is a large home and foreign trade in two-ply carded and combed Egyptian and combed sea island yarns, "gassed and prepared," as well as "prepared" or polished yarns ungassed. Considerable quantities of such yarn are exported to the United States for use by our lace makers. Samples sent, with price per pound, are all warp-twist skeins from Egyptian cotton, and include 70s/2, combed, 67 cents per pound; 70s/2, supercombed, 69 cents per pound; 80s/2, supercombed, 72 cents per pound; 80s/2, combed, 70 cents per pound; 80s/2, supercombed, 76 cents per pound; all of these samples being "plain and prepared," except the last named, which is "gassed and prepared." Gassing machines are better known in American mills than are those for either preparing or polishing skein yarns. Yarn is "prepared" by passing the skeins between three heavy rollers, the upper one being made of cast iron and the two lower ones from compressed cotton.

For special uses skein yarn is polished after being sized by being operated upon by a rapidly revolving brush while the skeins are kept at the requisite tension between two rollers.

[Illustrations of a yarn-bundling press, a yarn-preparing machine, and a cotton-yarn skein-polishing machine are forwarded by Mr. Whittam, and are filed for manufacturers' reference at the Bureau of Manufactures. The sample mentioned may also be obtained by manufacturers.]

SAVING SPINNING EXPENSE—PACKING FOR EXPORT.

Weavers of ring-spun filling in the United States who have to purchase their filling from other mills know the expense involved in reeling or cone winding the material by the spinner for shipment to the purchaser, who must in turn rebuild the yarn on a quill for use in the shuttle. To abolish this expense, trouble, and waste, attempts have been successfully made to spin yarn direct onto a paper tube. I include in the shipment two specimens of these, 22s, spun from American, the price being 19¼ cents per pound.

Much has been written regarding the matter of packing textiles for export. In Manchester this work has developed into a distinct trade. Many small shippers and nearly all agents have their yarns and cloth sent to packers to be made up for export. I append prices ruling in the month of March for packing 10-pound bundles into bales for continental destinations, the discount being 5 per cent.

Number of 10-pound bundles in package	10	20	30	40	50	60	70	80	90	100
Price per bale, in cents	64	74	84	94	104	114	124	134	142	164

The packer supplies all the material for covering the bales at his own expense. Spinners sell to shipping houses usually through a yarn agent, who is paid one-half of 1 per cent if he merely carries through the transaction. But if the agent guarantees the account,

he receives 1½ per cent. Yarns are sold in Manchester less 2½ per cent fourteen days, and no extension of time beyond the fortnight is supposed to be taken. Cotton yarns sold in the Bradford (Yorkshire) market are subject to a discount of 2½ per cent at one month.

INDIA'S EXTENSIVE YARN SALES.

Before leaving the subject of cotton-yarn exports I must refer to the exportations of British India. Last year India sold in eastern markets other than her own during the seven months from April 1 to October 31, 68,421,415 rupees' (rupee, 32 cents American currency) worth of cotton yarn. Yarn consumption throughout the world is steadily growing in volume, but up to this writing American spinners have nothing to show for any efforts which may have been made in their behalf. The past apathy of the trade is almost beyond belief. During the last decade I have during lengthy periods of domestic trade stagnation and low prices frequently seen coarse yarns, such as 20s/2, being peddled about the home market without finding a buyer at prices much below what they would have been eagerly taken up at by foreign shippers in the Manchester market. True, the real reason was that the American spinner knew nothing of the prices ruling abroad. He has from the beginning never looked beyond his home market for relief. He can not now nor at any future time obtain a wide and profitable connection abroad in a few weeks or months, but by careful efforts an excellent trade may be built up.

COTTON HANDLING.

EXTENSIVE FIBER SUPPLIES AFFORDS MANUFACTURING ADVANTAGES.

Special Agent William Whittam, jr., makes the following detailed report on cotton buying in Lancashire and the margins between the price of the raw material and standard fi ished cloth products:

The advantages of the Lancashire district as a cotton manufacturing center may briefly be said to be the sum of numerous great and small economies in buying, selling, and manufacturing processes effected by fierce competition in a relatively congested area. As Liverpool unquestionably sells much more cotton direct to spinners than any other city in the world, an examination of the market from a user's viewpoint is both interesting and instructive to American mill men; for whenever our mills attempt to enlarge their shipments to other countries their owners will be better prepared for the certain keen competition before them, if they are informed of the conditions under which their competitors have been able to secure and hold exterior trade for so many generations.

CONSUMPTIVE CAPACITY OF MILLS.

First, however, in order to emphasize the marvelous extension in the productive capacity of the "Lancashire" zone, it may be pointed out that the number of new spinning spindles added in the district of which Manchester is the distributing center and Liverpool the cotton buying headquarters exceeds ten millions, with approximately enough

new looms to take the increased yarn output. This development is all the more astounding when it can be truthfully said that this English growth is greater than the total number of spindles operated in either Germany, India, Russia, or France, or any other country in the world except the United States, and even when the spindleage of our Southern States is examined, its total does not reach the growth in Lancashire since 1900. And no end yet seems to be in sight for new mills are projected almost every week.

The total importations of cotton into Great Britain, in bales, through all ports during the last five calendar years were:

	1906.	1906.	1904.	1903.	1902.
American	3,112,847	3,618,188	3,067,638	2,806,918	2,863,967
Brazilian	232,493	149,056	94,559	175,023	235,331
Egyptian, etc	508,118	505,086	452,165	432,948	487,563
Peruvian, etc	92,973	91,336	70,917	48,158	49,411
East Indian, etc	184,141	120,423	243,818	196,604	82,997
Total	4,130,572	4,484,089	3,929,097	3,659,651	3,719,269

With the exception of 560,029 bales shipped to Manchester via the ship canal, and 130,235 bales imported through the port of London during 1906, practically all the material included in the foregoing table entered Liverpool. The number of bales reexported during last year was 518,791, and the average exports for the five years was between half a million and six hundred thousand. The actual consumption during the five years by British mills of bales from various sections amounted to:

	1906.	1905.	1904.	1903.	1902.
American	3,106,271	3,086,308	2,408,364	2,584,884	2,718,385
Brazilian	220,518	98,825	96,224	131,818	201,511
Egyptian, etc	395,295	393,581	393,913	334,492	350,980
Peruvian, etc	90,587	71,943	53,072	38,909	51,617
East Indian, etc	79,724	48,075	125,158	83,662	18,831
Total	3,892,395	3,698,732	3,076,731	3,173,765	3,341,324

It will be observed that during the season 1903–4, when American cotton was selling at unusually high prices, the British Indies had a very good crop and England used more than the normal quantity of raw material from her Eastern dependency.

The average weekly consumption by spinners in England has been as follows: In 1906, 74,850 bales; in 1905, 71,130; in 1904, 59,170; in 1903, 61,030, and in 1902, 64,260.

During 1904 the factories in Lancashire worked "short time," owing to the scarcity and high price of the raw material. This accounts for the small average weekly consumption of that year. Otherwise a steady increase in takings is noticeable, and this will no doubt be still further and very materially augmented when the new mills are in full operation.

LIVERPOOL AND MANCHESTER COTTON SUPPLIES.

Although the shipments direct to Manchester are small, as compared with the quantity handled in Liverpool, the Manchester Cotton Association and the ship canal company are laboring strenuously to

increase the traffic, and it is stated that a large cotton dealing firm in the Southern States has recently opened an office in Manchester with the object of dealing directly with spinners and eliminating the middleman. Liverpool, however, possesses several present advantages over Manchester, which so far seem to overbalance the cheaper freight rates via the latter city. There are more lines of steamers plying from the Mersey port, and both outward and inward bound freight can be secured with greater ease. Again, more varieties of cotton pass through, and a user can therefore fill his needs with greater ease and nicety. Nor must the fact be lost sight of that most spinners have old-established brokerage and financial connections which they are either loath or unable to sever. All this, taken in connection with the organization of the cotton exchange for doing rapid and accurate business, has up to this time enabled Liverpool to maintain her predominating position.

With the exception of Egyptian grown cotton, American manufacturers find their selection almost confined to home-grown material. On the other hand, the spinner making his purchases in Liverpool can select from a much wider range of varieties varying considerably in characteristics and price. These are broadly classified, as shown in the subjoined list:

American, including all types, such as Upland, Peeler, and other staple cottons and sea-island. Ordinary American was selling on February 13, 1907, between 10.54 and 13.66 cents per pound.

Brazilian, including Pernam, Ceara, Paraiba, Rio Grande, Maceio, and Maranham, ranging in price between 12.7 and 14.4 cents per pound on February 13.

Peruvian, etc., which embraces rough Peruvian, moderate rough Peruvian, smooth Peruvian, Peruvian sea-island (27¼ cents), West Indian, West Indian sea island, West African, East African—prices ranging from 10.5 to 21 cents.

East Indian.—The varieties are: Surats, subdivided into machine-ginned Surtee, machine-ginned Broach, saw-ginned Dharwa, Bhownuggar, machine-ginned Bhownuggar, Oomria No. 1, Oomria No. 2, machine-ginned Khandeish, Belatee, machine-ginned Comptah, Bagalkote, Scinde, and machine-ginned Scinde. Other sorts coming under East Indian are: Bengal, machine-ginned Bengal, Madras Tinnevelly, Western Madras, Commilla, China, Smyrna, Greek, etc. These cottons ranged between 7 and 11.06 cents on February 13.

SYSTEM OF COTTON BROKERAGE.

Having such a range to select from enables the buyer in Liverpool to lay down a "mixing" to meet any demand which may be made for price or special kinds of yarns, as will be seen more clearly from the counts for which the many kinds of cotton are used, which are given further on in this report.

Members of the Liverpool Cotton Association buy and sell for their clients every bale landed in Liverpool, and it is said that cotton can not be discharged from ships in that city unless it is to be disposed of through a broker member of the association. These men are known to the trade as buying or selling brokers. Those who confine their business to the former buy only for spinners, while the seller restricts his operations to disposing of cotton for the importer through a buying broker. Some firms act in both capacities in the same transaction,

thus drawing a double brokerage, but they are not looked upon with favor. Both brokers are paid a commission of one-half per cent, the owner and purchaser each paying the firm acting for him. Cotton is sold to the mills for cash in ten days less one-half per cent discount, any dispute being referred to an arbitration committee appointed by the association. By this method litigation, with its attendant heavy charges, is avoided. For years the question of moisture in cotton was a bone of contention with the trade. It is now ruled that if any bale contains over 10 per cent of moisture, the cotton is unmerchantable and may be returned to the seller.

At the end of last year a new cotton exchange building was opened in Liverpool costing about $1,750,000. The structure covers more than an acre. The floor of the exchange is 140 feet long by 165 feet wide. Many cotton firms' offices and sales rooms are in the building, as well as the quarters of the Cotton Clearing House and Cotton Bank, which are now amalgamated. On the periodic settling days for "futures" obligations are met by credit vouchers and all balances are discharged through the Cotton Bank. Standard samples of the grades of every variety of cotton regularly coming to Liverpool are kept on hand by the association, and in the offices of each broker the spinner can have corresponding types immediately placed before him.

CHARACTERISTICS AND SPINNING VALUES OF COTTONS.

Sea island has a fiber of small diameter and great length. It is very silky and regular, and will spin up to 450s both warp and filling.

Brown Egyptian ranks next to sea island in value and length and strength of staple. It has a strong fiber and is an easy cotton to spin and is used for warp and filling up to 110s.

Rough Peruvian is harsh to the touch, fairly strong, and is much used to mix with wool. It is seldom used for filling and may be spun into as fine as 80s warp.

Smooth Peruvian may be spun into 60s warp. It is a flexible and smooth variety, giving little trouble in the preparatory processes of spinning.

Brazilian.—In the better grades these cottons are suitable for yarns, both warp and filling, as fine as 60s. They are all classed as harsh and are most suitable for warps to be heavily sized on account of the oozy nature of the yarns made from them.

American is used for counts up to 70s. The fiber is usually comparatively strong, white in color, and easily handled in the spinning process.

East Indian.—These cottons vary greatly in spinning value, Hingunghat being suitable for 32s, while Scinde can seldom be spun higher than from 12s to 14s. The fibers are large in diameter, short in length, irregular in strength and color, and often very dirty.

SELECTION, MIXING, AND AVERAGE COST.

It is not uncommon here for different cottons which approach each other quite nearly in length of staple to be mixed together when an advantage in price can be gained by so doing, or where color, strength, or oozy characteristics are required in yarns for special uses. Considering all the differences in marked features of the cottons, as well as in their selling prices, it is obvious that the Lancashire spinner has here an advantage over his American competitor in the production of the many sorts of fabrics demanded by foreign consumers.

This range of material has also developed in the English mill manager a keen discrimination between the possibilities of the several types. He is thus frequently, by judicious selection and careful mixing, enabled to effect material savings in the cost of his mixing over what it would be were he confined in his operations to one growth.

In order to illustrate English costs in the way which appeals most forcibly to mill men, the average prices in American cents are submitted of 32s warp yarns, 8¼-pound shirtings, middling American cotton, and No. 1 good Oomra (East India) cotton; also the margins between the price of middling American and the yarn and cloth; also like particulars, as in February, this year.

VARIATION IN PRICE.

	Feb. 13, 1907.	1906.	1905.	1904.	1903.	1902.
Middling American	12.06	11.90	10.18	13.20	12.06	9.69
No. 1 good Oomra	9.12	9.31	8.81	10.56	8.81	7.50
32s. mule warp cops	19.50–21.50	18.37–20.75	16.00–17.50	18.25–19.88	16.37–18.12	13.75–16.00
32s. mule warp margin	7.44–9.44	6.48–8.86	5.82–7.32	5.05–6.68	4.32–6.06	5.06–6.32
8¼-pound shirtings, per pound	17.82–23.64	18.64–23.76	17.46–24.00	19.60–25.46	18.36–24.54	17.52–24.12
Margin 8¼-pound shirtings, per pound	5.76–11.58	6.74–11.86	7.28–13.82	6.44–12.22	6.30–12.48	7.84–14.38

It will be noticed that there is a considerable difference in the average prices and consequently in the margins for both yarn and cloth. In the case of yarn the variation is mainly due to better cotton being used for those commanding top prices. With 8¼-pound shirtings better cotton and a less per cent of size in the warp accounts for the higher priced cloths. Gray goods predominate both in volume and value in the returns of British exports of manufactured cottons. For this reason, no doubt, 8¼-pound shirtings, being made in large quantities, are always used in tables and diagrams showing the state of the manufacturing branch of the trade.

To properly apply the figures in the last table, one must be familiar with the construction of the 8¼-pound shirting. Its reed and pick are 64 by 60 per inch, 39 inches wide and 37½ yards in length, the piece to weigh 8¼ pounds. No counts of yarn or filling are given, hence it is evident that the weaver has a wide latitude in the relative quantities of size and yarn he uses. This accounts for the wide difference in the prices paid. The amount of size put on the warp in these goods is from 40 to 150 per cent.

CARE IN PURCHASING RAW COTTON.

Except where buying sea island, Peeler, and other staple cottons the merchant in the Southern States when bargaining for uplands or Gulf merely opens a handful taken from the bale and classes it by its color and cleanliness, taking into account also any evident damage done in ginning. Before similar cotton reaches the English spinner it has undergone a much more careful examination and revaluation on the basis of its real spinning worth. Buyers here spend considerable time over each sample they examine. Knowing the denomination or variety they need, the spinner next takes into account, when arriving at its value to him, the price asked, the effects of ginning on the physical condition of the lot (this should teach American planters the lesson that carefully ginned staple will bring better prices), such faults as cut, napped, curled, or twisted fibers being looked for. Discolora-

tion, the quantities of leaf, broken seed, fast or unginned seed, sand, and excessive moisture are also considered. Besides these, the length of staple of the shortest sorts is examined and the comparative strengtht silkiness, and elasticity of the fibers are taken into consideration, no-forgetting the bearing that the quantity of short, immature, imper, fectly developed and unripe fibers will have on the amount of waste made in the mill, as well as the effect the presence of an abnormal proportion of such fibres will have on the strength, elasticity, and general weaving value of the resultant yarn.

Liverpool grades of American cottons follow those of the United States in name, but are slightly better in quality. On the other hand, the Lancashire spinner generally uses cheaper cotton than does his American competitor for the same counts. This practice gives him another slight advantage in foreign trading.

MILL CONSTRUCTION.

A NEW AND TYPICAL LANCASHIRE SPINNING FACTORY.

A description of the present type of cotton-yarn mills in Great Britain is contained in the following article from Mr. Whittam:

In view of the enormous increase in the number of cotton-spinning spindles in Lancashire—referred to in a previous report—it will doubtless interest the American cotton trade to have a concise description of one of the most modern and well-planned mills in the district. A combination of steel, iron, brick, and concrete, known as "fireproof" construction, is universal here, and the speeders in the card rooms and frames in the spinning rooms are placed across the mill and not lengthwise. I have taken the Tulketh Mill, Preston, as being not only typical but somewhat in advance of its contemporaries, or at least of the many I have inspected. The mill contains 101,832 spindles, mostly mule.

The entire length of the main structure, apart from the projections of engine and boiler houses, staircases and offices, is 353 feet, and its width 138 feet, the whole of which is carried up to a height of 73 feet, and is divided into five stories. The first or lower story is occupied by the conditioning cellar, waste cellar, and warehouse, the conditioning cellar being placed in the center of the building, and measuring 194 feet long and 40 feet wide. It may here be remarked that the "conditioning" of yarns is a process which might profitably be given more attention by American spinners than it has yet received. A British spinner would consider it suicidal, in a business way, to build a yarn mill without a "conditioning" room, even if the yarns spun were to be woven on the premises. This first or basement floor contains also the spooling and beaming departments.

The whole of the second story or card-room floor is taken up by the carding and preparing machinery, and contains picker room, 120 revolving flat-cards, drawing, combers for one preparation, slubbing, intermediate, and 56 roving frames. The third, fourth, and fifth floors are occupied as spinning rooms, containing on each floor 12 pairs of mules and 30 ring frames, giving a total of 91,032 mule and 10,800 ring spindles for the three spinning rooms. The distribution is as follows:

Third floor, 6 pairs warp mules, containing 1,068 spindles per mule, and 6 pairs filling mules with 1,236 spindles to the mule. Extensive

cotton warehousing space and mixing room with bale breaker and an elaborate system of distributing lattices are on this story. The fourth floor holds 5 pairs of warp and 7 pairs of filling mules, each having the same number of spindles as those on the third floor; also 30 warp spinning frames of 360 spindles each. The top or fifth floor has 7 pairs of warp and 10 pairs of weft mules.

POWER INSTALLATION.

The engine house is a good and spacious building, measuring 84 feet long and 37 feet wide, with a height of 45 feet. The power is from a a pair of horizontal engines of 1,600 horse power, and the driving by ropes along a 12-foot race projection into the main rooms. The engine is fitted with an electric stop motion, by which it may be quickly stopped from any story of the mill in case of accident, or automatically by over speed of engine or disarrangement of the driving ropes.

A novel feature also is that at the entrance to the engine house is a spacious vestibule at ground level containing electric-lighting plant as well as a powerful fire pump and other fire appliances. The condenser and air pumps of main engine are also placed in this vestibule, thus adding to the general effect. From this level springs an ornamental iron staircase to gain access to engine level. The walls also of this part of the engine house are tiled to the height of about 21 feet. There are two reservoirs for condensing purposes, holding about 2,000,000 gallons. An overhead traveling crane runs the length of the engine house, capable of dealing with any of the parts of the engine.

The boiler house stands adjacent to the engine house and contains four Lancashire boilers, each 30 by 8 feet 6 inches, and affords additional accommodation for a fifth boiler, if such were required. These boilers are fitted with superheaters, by which the steam is dried and raised in temperature about 150° F. above the temperature of saturated

steam. The boilers are fed with soft coal by means of mechanical stokers, which automatically stop when the desired pressure of steam is exceeded, which movement also closes the dampers in main flues. There are also feed-water heaters, by which the feed-water is raised to about 300° F. before entering the boilers, and which is measured by a permanent meter to know constantly the efficiency of boilers and fuel.

The main staircase projects from the building and winds round a central well, three flights to a floor, from the landings of which are approached at different levels the toilet accommodations and a room where the operatives may obtain hot water. The staircase is carried up as a tower, carrying the water tank which supplies the sprinkler installation, and rises to a height of 125 feet above the ground. A cage elevator 12 by 5 feet connects each floor of the building.

VENTILATION—CLASSES OF YARNS TO BE SPUN.

A Plenum system of ventilation and humidifying has been adopted and answers remarkably well. The fresh-air inlet is placed on the ground level through the outside wall, and the air is propelled by a 12-foot fan through a revolving water filter, thus purifying the air of any dirt and humidifying it. In addition to the usual steam pipes in the rooms the fresh-air inlet is provided with a number of independent heating coils, so that the humidity can be maintained at any desired degree.

The air is then distributed from subducts below the basement level by means of the iron columns of the mill into the different rooms, the columns being fitted with openings near the top, regulated by means of metal hoppers. The foul-air outlet is by means of flues built in the brickwork at several points from each room and carried up to the roof, and in the card room by continuous gratings in the floor between the rows of cards, and leading into a large flue below the floor. This exit is assisted by a large exhaust fan. Considerable care has been exercised in dealing with the exterior elevations, as the illustration herewith will show, for it is always a difficult matter to produce a good architectural effect while keeping down the cost, but the continuity of line produced by the judicial use of buff brick bands and the massive dimensions of the building itself combine to create a structure of fine appearance.

Instead of the somewhat usual arrangement of having a mill of this size confined to a few numbers of one quality of yarn, the management decided that it would tend to better results to lay the mill out in sections somewhat overlapping each other, so that should the existing difficulty in obtaining cottons of a certain grade continue they would be in a stronger position. Bales below standard will be used in the lower qualities and others above standard consigned to the mixing for the better qualities. Egyptian and American cottons will be used, and from American-grown staple 36s to 42s warp will be spun on the ring frames and 50s to 54s filling on mules.

This will occupy one-third of the spindles. The next section of one-third will spin 50s to 60s "super" carded Egyptian warp yarn (mule) and 72s to 84s filling of like quality. The last section will spin from combed Egyptian cotton 60s to 80s warp, 56s to 76s yarn for twisting, and up to 120s filling. It seems to have become the settled opinion of Lancashire spinners that from 100,000 to 120,000 spindles is the most economical unit for yarn mills in their area. Owing to the growth in spindleage already mentioned a dearth in the labor supply is becoming apparent.

AUSTRIA-HUNGARY.

STEADY PROGRESS OF THE INDUSTRY.

GROWTH OF TEXTILE MANUFACTURING AND OF THE EXPORT TRADE.

Special Agent A. B. Butman reports that the cotton industry of Austria-Hungary employs 118,200 persons, operating 3,609,000 spindles and 110,000 looms, and uses 650,000 bales of cotton per year. He furnishes the following particulars as to the operations of manufacturing and the methods of building up a foreign trade for the productions:

The cotton factories proper aggregate 130, with a great number of small establishments employing from 5 to 100 persons. The latest statistics show that in 77 spinning mills with 20 to 100 employees each the number of workers is 4,262, and in the 140 spinning mills with over 100 employees each the workers number 37,114, while 125 small weaving mills give employment to 6,459 and 182 mills give employment to 51,827. That there are very few large mills is shown by the figures for Bohemia, where about 70 per cent of the cotton mills of the dual monarchy are situated. The 185 cotton-spinning mills there have 22,764 employees and the cotton-weaving mills 46,125 employees.

The small establishments are situated in the villages of Austria without consideration of transportation facilities, simply seeking the lower rate of wages. These were formerly considerably lower in such localities than in the cities, but have so increased during the past few years that many small establishments have been centralized in the cities; accordingly there has been a decrease in the number of spinning mills (about 20) in the last ten years in spite of an enormous increase in the production. For example, one manufacturer having three cotton-spinning mills distributed in the villages of Bohemia now has only a large one and at a good distributing point, Schlan, where fuel is cheaper in price, transportation facilities are much better, and wages are not appreciably higher.

However, the movement is but recently started and is far from general, the larger number of the cotton mills having been erected with lower wages as a first consideration. One of the largest cotton manufacturers of Austria has a spinning mill in Beraun, a weaving mill in Liebthal, and a printing mill in Prague, necessitating the transportation of the output from one mill to the other for weaving, sizing, and printing purposes, covering a distance of about 50 miles in the process and about 275 miles to reach the distributing point, Vienna, where the principal office is established.

WAGES PAID.

Statistics taken from a recent trade publication show that there were in 1903 184 spinning mills, employing 17,513 males and

18,548 females, and 449 weaving mills, employing 29,841 males and 44,226 females. These statistics show the proportion of male employees in the spinning mills to be 48 per cent and of female employees 52 per cent; in the weaving mills, male employees 40 per cent and female employees 60 per cent. I have been unable to secure statistics showing the number of children employed in the cotton industry, but I am informed that they form a good percentage of the total. The percentage of women employees in the cotton mills is steadily increasing in Austria, as there are few high-speed or automatic machines in the cotton mills, and the wages are so low that entire families must work to assure the necessities of life. A division of the total amount of wages paid in the cotton spinning and weaving mills of the Kingdom during one year would only assure to each employee $116.75.

In the 66 cotton-thread factories or establishments 762 males and 2,192 females are employed, the proportion being 26 per cent male and 74 per cent female employees. Of half-cotton goods factories there are 21 mills, with 2,058 male and 3,060 female employees. The salaries paid in these two industries average even lower than in the spinning and weaving mills. The following are the wages paid in the cities, those in the small villages being from 10 to 15 per cent lower:

Per day in spinning: Overseer, $1.30 to $1.40; engineer, $1.15 to $1.35; stoker, 85 to 95 cents; machinist, 85 to 95 cents; storeroom employees, 45 to 55 cents; carders, women, 30 to 35 cents; stretchers, women, 45 to 50 cents; flyers, women, 50 to 60 cents; mule spinners, men, 75 to 85 cents; frame spinners, men, 50 to 55 cents; reelers, women, 45 to 50 cents.

Per day in weaving: Overseer, $1.10 to $1.25; weavers, 65 to 75 cents; spoolers, women, 50 to 55 cents; warpers, women, 65 to 75 cents; foreman sizer, $1 to $1.10; assistant sizer, 50 to 55 cents.

The salary of managers of the larger factories varies from $1,200 to $3,000.

CHILD LABOR AND WORKING DAY.

Large numbers of children are employed in the mills, they being employed almost without exception in the picking, drawing-frame, flyers, spooling, and ordinary spinning departments. They usually begin work at the age of 14 years, with wages of from 20 to 25 cents per day. The wages of women average about 40 cents per day and of men about 75 cents per day for skilled operatives in the cotton industry, and from five to ten years are required to become a mule spinner at a wage of 80 cents per day. Girls tend to from 7 to 10 cards and 1 flyer each. The average wages in the spinning department may be considered at from 25 to 35 cents, and in the spool room at 30 to 35 cents per day. The working day is of from ten to eleven hours, generally eleven hours, from 6 a. m. to 6 p. m., with one hour at noon for lunch, though the employees all take lunches at 9 and at 3. but without stoppage of work, the lunches usually consisting of black bread and beer.

The employers complain of the lack of interest in the work performed and the notable absence of ambition. For instance, most weavers content themselves with tending two looms, earning from 35 to 45 cents per day, when they could easily tend four and earn nearly

double. In very few cases does an employee tend three looms, and rarely ever four.

The Bohemian cotton manufacturers seem to be unanimous in saying that owing to more productive labor we in the United States are able, in spite of higher wages, to compete successfully with them in any of the unfinished cotton products, generally underselling them in the world's markets; but they add that it is impossible for us to compete with them in the finished products, as the finer lines of cotton goods require such attention from the employees that they can not possibly attend to more than two or three looms, which, in view of the high cost of labor in America, brings the fine goods to a higher cost than the Bohemian products.

MODERN MILLS.

A prominent Bohemian manufacturer who has been in America to study our cotton industry states that as a general rule the Austro-Hungarian factories are as well equipped as factories in the United States, most of the machinery being of the latest patterns and imported from England. Our American consul at Prague, who has visited many cotton factories, fully indorses this statement.

I am forwarding to the Bureau of Manufactures pictures showing one of the modern Austrian cotton mills. This spinning mill can compare with any of the United States as regards equipment. It has been constructed from plans made in England and equipped with the latest English cotton machinery. One partner in the firm studied the textile industry of England during two years, residing in Manchester for that purpose. Many other cotton manufacturers have sent members of their families to England for the same reason, who have returned, generally after two to three years' study, with a good knowledge of the most modern cotton manufacturing methods. On account of the high taxation on companies the textile industry is generally in the hands of private parties. The mills manufacture chiefly the coarser number of yarns, from Nos. 20 to 30, and even below, also 36s to 42s, numbers over 60 being very little manufactured and numbers over 80 generally imported. The weaving establishments turn out calicos, Jacquards, fancy weaves, and general colored goods, which are up to the standards of any country. This explains why only the finest of yarns and of cotton goods are imported. The bleaching, dyeing, and printing establishments are equipped with the most modern appliances.

The following statistics for the year 1906 show the distribution of exports according to quantity in metercentners (100 kilos, or 220.4 pounds):

Destination.	Yarns.	Goods.	Destination.	Yarns.	Goods.
	Metercentners.	*Metercentners.*		*Metercentners.*	*Metercentners.*
Turkey	8,176	33,587	Switzerland	80	1,876
Roumania	18,144	19,814	United States	54	1,605
Germany	6,816	6,662	France	28	446
Servia	5,582	3,178	Other countries	11,025	31,231
Italy	565	2,404			
Great Britain	610	2,139	Total	51,080	102,942

COTTON EXPORTS FOR THREE YEARS.

About 65 per cent of the total cotton goods exports and about 80 per cent of the cotton yarns exports are sent to Turkey and the Balkan

States. The following are the statistics of the total cotton yarns and cotton goods exported from Austria-Hungary in the last three years, in both quantities and values (crown=20.3 cents):

	1904.		1905.		1906.	
	Metercentners.	Crowns.	Metercentners.	Crowns.	Metercentners.	Crowns.
Cotton yarns	46,234	10,589,367	45,476	11,175,741	51,181	11,644,105
Cotton goods	66,085	29,669,270	83,628	37,361,248	103,967	54,055,585

In the last ten years, from 1896 to 1906, the exports of cotton goods increased 289 per cent, while during the last five years alone they increased 195 per cent, showing an average of about 40 per cent for each year. The exports consist of 64 per cent colored cloths and 14 per cent uncolored cloths, the balance of exports being in knitted goods, velvets, laces and lace curtains, embroideries, tapestries, tape and webbing, with various fancy articles and small cotton goods. These exports are subdivided as follows: 4 per cent of uncolored unbleached cloths; 10 per cent uncolored bleached cloths; 12 per cent of cloths of one color; 35 per cent of cloths of many colors; 17 per cent of prints; balance fancy and cotton small wares.

EXPORTS CHIEFLY TO TURKEY AND BALKAN STATES.

As previously stated, Turkey and the Balkan States absorb most of the cotton exports of Austria-Hungary, in the following proportions: Turkey takes 40 per cent of the uncolored unbleached cloths; 35 per cent of the uncolored bleached cloths; 32 per cent of the cloths of one color, and 18 per cent of the cloths of many colors, while the Balkan States take 25, 29, 24, and 39 per cent of these four classes, respectively. The exports of cotton goods from Austria-Hungary in 1905 was composed as follows:

	Metercentners.	Crowns.		Metercentners.	Crowns.
Unbleached	4,830	1,521,450	Velvets and velveteens	2,464	1,655,808
Bleached	7,475	3,891,510	Ribbons and trimmings	3,015	1,793,925
Cloths, one color	10,303	4,481,805	Buttons	184	55,200
Cloths, many colors	32,404	13,285,640	Knitted goods	4,588	2,385,760
Prints	16,332	6,206,160	Wicks	166	46,480
Muslins, gauzes, etc	291	160,050	Belts, hose, nets, and ropes	60	21,000
Tulles	42	65,100	Beltings	14	5,180
Curtains, lace	261	182,700			
Embroidered, etc	918	734,380	Total	83,611	36,888,148
Laces	264	396,000			

The following were the principal exports, in metercentners, by countries (1 metercentner=220.4 pounds).

	Unbleached.	Bleached.	One-color cloths.	Cloths—many colors.	Prints.
Turkey	1,583	3,281	3,281	5,521	2,874
Roumania	226	1,318	872	8,599	1,718
Servia	124	524	942	2,347	1,331
Bulgaria	128	198	370	874	977
Montenegro	524	45	221	144	177
Greece	109	227	562	1,616	297
Italy	119	285	277	901	297
Switzerland	774	207	.....	1,351	164
Russia	38	144	60	357	52
Germany	224	686	304	1,731	1,351
Hamburg for reexport	135	127	98	910	910
Great Britain	16	29	13	549	1,309
Egypt	139	490	1,581	2,385	956
British India	474	74	895	1,879	225
China and Japan	.....	6	81	97	4
Brazil	12	35	30	488	366

DETAILS OF EXPORT SALES.

In muslins and gauzes the principal sales were 98 metercentners to Bulgaria, 65 to Germany, 50 to Servia, and 49 to Roumania. Of tulles 20 metercentners went to Great Britain, 6 each to Roumania and Bulgaria, and 5 to Servia. Of curtains 102 metercentners were exported to Roumania, 50 to Switzerland, and 41 to Servia; and of embroidered cloths Germany took 105 metercentners, Great Britain 68, Switzerland 22, Roumania 20, and Servia 14. Bulgaria purchased 73 metercentners of Austrian lace, Germany 44, Servia 35, and Roumania 30.

In the exports of velvets and velveteens those to Germany led, with 825 metercentners, followed by Turkey, 313; Mexico, 206; Roumania, 155; Egypt, 126, and Bulgaria, 122; while in ribbons and trimmings British India purchased 1,707 metercentners, Germany 166, Turkey 244, and Great Britain 157. Germany took 122 metercentners of buttons, Holland 31, and Russia 13.

In the knitted goods class Turkey's purchases were 2,121 metercentners, Egypt's 639, Roumania's 346, Bulgaria's 300, British India's 223, Servia's 217, Italy's 149, and Germany's 159. Of wicks Roumania took 94 metercentners and the United States 23, while of belts, hose, nets, and ropes Germany purchased 26 metercentners and Russia and Roumania each 12.

The export trade to the Balkan States and the Levant is very well organized, the larger factories each having a representative in the trade centers of these countries and the smaller concerns having organized themselves into an export association called the Austrian Oriental Company and having representatives in most of the oriental states. Special attention is given to the tastes of the people. Special goods with special designs are made to meet these tastes, agents visiting these countries each year for this special purpose, which explains the tremendous hold Austria has upon this trade.

FOREIGN SALES METHODS.

Long credit is usually given, but losses are comparatively rare, as the manufacturers are generally well served as to credit information, having excellent banking and commercial intelligence connections. Local manufacturers say that America can not compete with them in this territory, which they seem to consider as particularly their own, on account of the fact that we can not manufacture cheaply enough the quality of goods wanted, will not cater to the special tastes of the people, do not know the trade conditions in these countries, are not ready to meet their peculiar requirements, and, finally, because we will either not give, or at best give very little, attention to small orders.

Of late considerable trade is being built up with the South American States. Until recently the trade was all done through Hamburg and Bremen agents, but the manufacturers are now sending special agents with full lines of samples and are increasing their trade rapidly. I learned of one manufacturer who made a short trip last year to study the trade possibilities and sold without much effort over 300,000 crowns ($60,000) of goods. Others are following his example, and it is expected that this trade may soon be as well organized as that of the Balkan States and the Levant. In finer goods the

manufacturers of Austria-Hungary can certainly undersell us in South America.

The Austrian Government is giving considerable encouragement to the trade, helping to form export associations, securing trade information, subsidizing steamship lines, financing or helping to finance banks in foreign countries, etc. Lately it consulted the cotton manufacturers for the purpose of facilitating the import of yarn for manufacturing into cotton goods for export, but is meeting with considerable opposition from the spinners.

The usual credit extended in most of the Austrian foreign trade in cotton goods is six months. In many cases, however, due to excessive competition, buyers succeed in obtaining as much as nine months to a year. On payments within sixty days a discount of from 4 to 5 per cent is allowed.

THE IMPORTS.

The total imports of raw cotton, yarns, and cotton goods for the years 1904, 1905, and 1906 were as follows:

	1904.		1905.		1906.	
	Meter-centners.	Crowns.	Meter-centners.	Crowns.	Meter-centners.	Crowns.
Raw	1,666,515	225,872,775	1,747,774	238,173,508	1,775,785	207,212,782
Yarns	72,659	28,326,277	65,744	25,977,492	63,712	28,126,312
Cloths	13,839	17,220,908	13,448	16,828,728	17,461	21,687,083

Of the cotton yarns imported in 1906, 63,712 metercentners, there came from England 44,770 metercentners, from Germany 12,132 metercentners, and from Switzerland 6,309 metercentners. Only 300 kilos of from Nos. 70 to 110 double were imported as an experiment from the United States, the bulk of such numbers usually coming from Great Britain. Of raw cotton, 841,281 metercentners came from the United States.

The imports consist chiefly of the finer cotton fabrics. Of 17,461 metercentners of cotton goods, valued at 21,687,083 crowns, imported in 1906, 9,451 metercentners came from Germany (mostly from Alsace), 2,567 metercentners from Switzerland, 2,234 metercentners from Great Britain, 1,331 from France, and 154 metercentners from the United States. The cotton goods imported from the United States in 1905 amounted only to 36 metercentners. Of the 154 metercentners of cotton goods imported from the United States 82 metercentners consisted of unbleached uncolored cotton, 20 metercentners of colored cotton one color, 15 metercentners of prints in from one to four colors, the balance of 37 metercentners consisting of all sorts of fancy goods. The duty on cotton goods is high and we can hardly hope to export much to Austria-Hungary. We can not compete with Germany, England, Switzerland, and France in the sale of the finer goods. As regards medium qualities, these are manufactured cheaper in Austria-Hungary.

SIZE OF GOODS—FUTURE PROSPECTS.

The length of pieces of uncolored goods in general favor in Austria-Hungary ranges from 131.3 to 153.1 yards; and of colored goods, from 43.1 to 76.6 yards. The principal kinds of unbleached and uncolored goods manufactured are 33 inches wide, 19 and 17 warp and

weft, and made from 36 and 40 yarns; and 31 inches wide, 14 and 14 coarse-thread goods made with 200 and 20 yarns.

Higher wages are bound to come in the Austrian cotton industry. Already wages in most of the industries have been increased by from 5 to 15 per cent in the past two years, but in very few cases have wages been increased in the cotton industry. The cotton employees have struck for higher wages, but have thus far lacked the proper organization to assure success. They are now organizing and manufacturers feel that the employees will win in the long run.

It is claimed that within five years most of the important factories of Austria-Hungary will be equipped with automatic looms, due to shorter working hours, higher wages, and the tremendous increase in export trade where goods manufactured with automatic looms are bound to have the advantage. Austria is making extraordinary progress in the manufacture of cotton goods, the exports increasing at the rate of 40 per cent per year and at the rate of 45 per cent last year. The production increased in 1906 approximately 45 to 48 per cent, and Austria now ranks fourth in per capita production, making greater progress in the last decade than any European country. With an increase of 289 per cent in ten years; an increase in spindles of 35 per cent (750,000) contracted for delivery during 1906–7; the total production of yarn and cotton goods for 1907 practically sold out; four-fifths of yarns sold out for the first six months of 1908; the greater part of the cotton goods to be produced during this same period already ordered, many orders for 1909 being already booked; besides well-built factories, modern equipments, superior technical knowledge, low wages, fair labor, cheap fuel, no competition at home from outsiders, and good export organization, the cotton industry of Austria-Hungary deserves attention and study.

ITALY.

PROGRESS OF THE INDUSTRY.

EXTENSION OF MANUFACTURING AND THE EXPORT TRADE.

Writing from Genoa, Special Agent A. B. Butman submits the following report on the Italian cotton trade:

The rapid growth of the cotton industry in this country during the past twenty years, and the consequently enlarged volume of Italian export trade in piece goods are conditions worthy of careful investigation and study on the part of American cotton manufacturers and exporters. The cotton mills of Lombardy number about 500, or about 60 per cent of the total number for Italy; the number of looms throughout the country (exclusive of hand looms) being estimated at 150,000, with 5,000,000 spindles, employing 300,000 people. The weaving machinery found in Italian mills is practically all of English make. Ten hours usually constitutes a day's labor, for which women receive a wage of from 30 to 40 cents and men from 50 to 60 cents.

The cultivation of cotton in Italy is insignificant, the yield averaging not more than 10,000 bales. A project is said to be on foot for the extension of its growth on an important scale. During the American civil war a large amount of cotton was produced in Italy, and its extensive cultivation was continued until 1871, when about 198,000 acres were devoted to the fiber. Cotton fields were then turned into vineyards as yielding more satisfactory export returns owing to the scarcity of wine in France. Much attention has of late been given to scientific agriculture. This country is also making an effort toward cotton raising in Argentina; in fact, for more than ten years Italians interested in the South American trade have been attempting to create a cotton crop in Argentina, with fairly successful, though gradual, results. In 1905 the estimated area under cultivation was 10,000 acres. Several companies with Italian capital have been organized to exploit the field and are actively at work, one company having exported about 2,000 bales of 500 pounds each.

IMPORTS AND EXPORTS.

The total amount of the annual importation of raw cotton is estimated at 700,000 bales, of which 500,000 are imported from the United States, 100,000 from India, and 30,000 from Egypt. From January 1 to September 30, 1906, cotton to the value of $35,970,417 was imported into Italy, an increase over the corresponding period of 1905 of $2,881,816.

The export of cotton goods from Italy during the same period in 1906 amounted to $15,192,515, an increase of $2,209,065 over 1905. For the first nine months of 1906 cotton yarn and thread were exported to the extent of 77,341 metric quintals (quintal, 220 pounds), Turkey taking over one-half and Latin America about one-sixth. Other textile exports aggregated 202,461 quintals, an increase over the 1905 period of 29,736 quintals. The increased sales of Italian cotton goods were confined to Africa and Central and South America. For the first nine months of last year these exports amounted in

quintals to 2,350 in Austria and Hungary, 1,177 in France, 1,229 in Germany, 6,328 in Roumania, 2,280 in Switzerland, 41,915 in Turkey, 32,842 in Africa, 88,937 in Central and South America, and 24,503 in other countries.

In the cotton goods imported during the first nine months of 1906 Great Britain furnished Italy with 1,910 quintals of yarn and thread, 6,620 quintals of mixed cotton textiles, 424 quintals of cotton velvets, and 277 quintals of laces and embroideries, being a total increase over the 1905 period of 1,046 quintals. Germany's sales of these four classes of goods were 2,607, 5,047, 747, and 278 quintals, a total advance over the 1905 period of 829 quintals. France's sales in Italy of the same goods were 393, 1,364, 245, and 158 quintals, a total increase of 79 quintals. Of the total cotton textile imports for the first nine months of last year, amounting to 24,577 quintals (against 21,436 quintals in the 1905 period), Switzerland supplied 2,598.

Turkey, Roumania, Bulgaria, Egypt, South America, India, and the Philippines are the principal foreign markets for the Italian cotton-export trade. Twenty-five years ago this country was one of England's best customers for cotton textiles; now she is becoming a strong competitor in the markets of the world.

SOUTH AMERICAN TRADE.

This trade was developed on the reports of one man who went out some years ago to make a study of probable outlets for the then projected cotton-mill system which has since grown up in Lombardy. It was made possible by the large number of Italians emigrating hence for settlement, and is an excellent illustration of the value of trade which follows in the footsteps of the emigrant. Upon the demand created by them was erected the large volume of business now enjoyed. The familiar method of putting trained traveling men into the field was followed up in a way which might be imitated in other countries to advantage. No men unable to speak the language of the people whom they were to visit were sent out, and before they went full instructions based on the careful plans of campaign drawn by their superiors were given. Banking arrangements were looked after with extreme care. Transportation facilities were studied. And then, as the crowning effort in the entire scheme, transportation lines were created in order that the trade might be carried in Italian bottoms and controlled by Italian hands. Too much emphasis can not be put on this successful establishment of direct and perfectly equipped steamship lines between Italian home ports and South America.

In Uruguay, as in other South American countries, Italian cotton exporters have found their greatest aids in the banks established in the large centers of trade by Italians, backed by home capital. These banks stand as sources of quick and certain information concerning every phase of the business, and have been used to draw out reports not only on the standing of clients, the condition of money, the probable demands for credit, etc., but on market conditions and on observations concerning the trade of rival nations.

Importation of Italian white and colored cotton textiles into Argentina increased from 3,964,000 kilos (kilo, 2⅕ pounds) in 1901 to 4,843,000 kilos in 1905. The extent of this trade may be realized

when it is remembered that Argentina has only 6,000,000 inhabitants. A similar increase occurred in cheese and vermouth.

Italy sends to the Chilean market large quantities of dark colored mixtures for trousers, generally worn in the south of Chile, the lighter goods used in the northern and central portions of the country being furnished almost wholly by Germany. Italy also supplies upholstering material for that market.

OTHER MARKETS.

To Egypt Italy exported cotton goods to the amount of £E.181,266 (Egyptian £=$4.94), while in Macedonia Italy passed England and Germany in the sale of woolen goods, chiefly jerseys, and also passed Germany and Austria in cotton textiles, so that it at present stands second on the list, England being the first.

The Italian cotton goods sent to Greece in 1904 amounted to $446,000. A very important article in Smyrna is the barchent, a printed cotton textile, which has an annual sale of 250,000 pieces of 40 to 50 meters each (meter, 39.37 inches), which costs from 0.25 to 0.60 of a franc per meter, according to quality. Italy occupies the first place in the sale of this article, exporting yearly to Smyrna 65,000 pieces, as compared with Belgium, 30,000; Austria, 20,000 to 40,000; England, 45,000 to 50,000; Switzerland, 20,000; Germany, 8,000 to 10,000, and France, 4,000 to 5,000 pieces. The Italian cloth is preferred because of its designs and the solidity of the colors.

The principal articles used in Candia are the simple threads, bleached and unbleached, white, colored (red, blue, and black), the unbleached American textiles (Cabot), white textiles (such as madapolam, shirtings, or calico), while printed textiles also find a good market there. Italy's textile exports thither amounted to $8,630.

Milan is the Italian center of distribution for textiles. The freight rate from Milan to Genoa, including loading, etc., is 77 cents per 100 kilos, while the freight rate from Genoa to Constantinople and Smyrna is $1.06 per 100 kilos; to Aden, $7.74 per cubic meter (35.3 cubic feet); to Abyssinia (nearest port Massowa), $10.95 per cubic meter; to Port Said, $7.14 per cubic meter, and to Shanghai, $10.12 per cubic meter.

THE FORTHCOMING EUROPEAN COTTON CONGRESS.

As showing the vital importance which at the present moment attaches in the Italian mind to all phases of the Italian cotton industry and trade, the following article (translated from the Italian) regarding the fourth International Cotton Congress is explanatory:

The yearly cotton congress will be held at the beginning of June, 1907, in Vienna. The following arguments will be touched upon:

First. Organization and work of associations attached to the international federation.

Second. The new contract for cotton, as proposed by the special commission.

Third. The cultivation of cotton and its relative victualing.

Fourth. Contracts (ways of selling the yarns, threads, and textiles). The Italian Cotton Association and Exchange has sent a special circular to its members asking them to obtain the success of this most important meeting by sending reminders and studies, which were to be addressed to the association by the end of February. Besides this, the association of spinners, twisters, and weavers of Switzerland have sent to the Italian Cotton Association their ideas

as to the regulating the supply of cotton. The association has put the following question to the members:

First. If they think it proper to follow up the Swiss ideas for regulating the supply of cotton.

Second. What the members think of the following:

(*a*) If they think that by guaranteeing the minimum price of cotton, and if the association has always in stock 1,000,000 bales of American cotton to be bought at a fixed price, if these can have a favorable influence on the increasing of the plantations of cotton, so as to maintain the harvest equal to the demand.

(*b*) If this guaranty, while preventing to a certain extent the lowering of the values of the stocks, would make easy the creation and the existence of visible and invisible supplies.

(*c*) If the members think that by creating a stock of cotton they can obtain a certain equality in the supply and consumption of cotton, and if by using up this stock in the years when the crop is scarce, or, in other words, when the cotton reaches a certain maximum price, an eventual scarcity of cotton can be avoided.

(*d*) If by not having a reserve of cotton and with the help of a special fund (of money), which would then be disposable, it would be thought possible to effect a diminution of work in such a way as to make a general "short times" possible, and in this manner obtain a notable diminution of stock on the market.

(*e*) If it is possible to obtain such a fund by levying a tax of 1.25 lires (or 1 mark or 1 shilling) per bale of cotton, which will cover expenses, and what is the best method of securing this sum (from spinners or from the middlemen in cotton).

(*f*) If a similar course ought to be adopted also so as to regulate the Egyptian cotton.

(*g*) If they think it proper to modify this project in any way; and if so, how and why?

ITALIAN METHODS.

HOW GOODS ARE EXPLOITED IN VARIOUS MARKETS.

Consul J. E. Dunning, of Milan, in his review of Italian trade for 1906, furnishes valuable information as to the methods by which that Kingdom is securing markets for cotton goods in the Philippines and South America, concerning which he writes:

The Continent of Europe is finding an exceptional market in the island possessions of the United States and particularly in the Philippines. During 1906 this consulate certified to invoices covering Italian goods going to the Philippines worth $160,000, as against $54,000 for the year 1905. Cotton goods continue to hold the high line for this trade; but there is a very long list of other articles, evidently trial shipments or initial orders, characteristic of the opening of a campaign by conservative merchants both here and in the islands.

The Milan trade with the Philippines is not distinctively Italian; it is European. It is entirely in the hands of one firm, with headquarters in Milan and Manila. This firm manufactures nothing, but acts as a trading company between the manufacturers of a great variety of articles on the one side and the retailers in Manila and other cities of the archipelago on the other.

The trade has been worked up in the methods most approved by active exporters the world over. Experienced men, not employees, but actual members of the firm, have been sent to the islands to thoroughly canvass the field. They have appointed agents in outlying

localities, have established stores in Manila, have laid out their banking arrangements, and studied the transportation inlets. They have made personal connections with the skippers of coastwise steamers and sailing vessels and have granted them commissions on all orders secured from small places up and down the archipelago. They have selected traveling men on the ground rather than from among their office staff at home. These send back reports on the classes of goods required by the Filipinos, and the terms on which they will purchase them. They have paid special attention to the peculiar wants of the native peoples, and have gone deeply into the methods previously employed by American and other firms already exporting to the islands. In the meantime the Milan house has been industriously canvassing the European manufacturing field.

CONTINENTAL HEADQUARTERS AT MILAN.

Milan is used as the continental headquarters simply because of its accessibility, the number of manufactured articles which can be bought here for export, and its unexampled situation and equipment as a general clearing house for trade. Such articles as the Italian market does not supply are brought to Milan from Germany and Austria and are here prepared for shipment to Manila or Iloilo. In this way during 1906 more than $80,000 worth of cotton textiles were sold at Manila through the Milan consulate. Felt hats constitute another very strong line, the stock being low grade and bought for export from the great hat-making center at Monza, 9 miles north of Milan. Cotton underclothing, parasols, perfumery, and sterilized milk are leaders in the long line, and all of them are on the increase. The marked advance in shipments during the final quarter of 1906 indicates a wide development of this trade in 1907.

The sterilized milk is shipped without chemical preservative and is said to gain some advantage in that way. The exporters have industriously advertised the opinion that it reaches the consumer in a form more attractive to the eye than does the American condensed milk, containing preservatives which sometimes, according to the German report, discolor it during a long period of storage. The perfumery is mostly Milan made, with special reference to Filipino fancy, while the umbrellas and certain of the textiles are also particularly colored and figured to suit the Philippine trade. Silk shawls, which are one of the strong minor lines of export from Milan to New York, are increasing in demand in Manila. They are the small tussah article, much worn to church by Italian and other women as a head or shoulder covering.

SOUTH AMERICAN TRADE—DIRECT STEAMSHIP LINES.

While the amount of trade between Milan and South American ports can not be definitely stated, there is no doubt of its magnitude. Cotton and silk textiles lead. The trade is due to reports of one man who went out some years ago to make a study of probable outlets for the then projected cotton-mill system which has since grown up in Lombardy. It was helped by the large numbers of Italian emigrants settled in South America, an excellent illustration of the fact that traffic follows in the footsteps of the travelers of this class.

Upon the demand created by them was erected the immense volume of business now enjoyed.

Trained traveling men were put into the field; these were followed by men who could speak the language of the people to whom they were sent. Before going these agents received full instructions based on the careful plans of campaign drawn by their superiors. The plan was definite. Banking arrangements were looked to with extreme care. Transportation facilities were studied, and then, as the crowning effort in the entire scheme, transportation lines were created in order that the trade might be carried in Italian bottoms and controlled by Italian hands.

Too much emphasis can not be put on this successful establishment of direct and perfectly equipped steamship lines between Italian home ports and South America. Every such steamer became a center of trade influence. South American merchants can come to Italy direct in large, fast, and elegantly appointed ships, and Italian traveling men can go out direct in the same ships. The constant and close interchange which these systems have created are a tremendous force in commerce. In this part of Italy to term oneself an "American" is to be considered as a resident of Brazil or Chile or Argentina, but never of the United States.

RELATIONS WITH SOUTH AMERICA.

Every South American country has a well-equipped consulate in Milan, all of them of more ample accommodations and liberal allowances than are afforded by some other great nations to their representatives here, while several of the incumbents are consuls-general. The Chilean consulate is one of the best separate residences in the city. South American flags are seen in the best streets.

Everything which would lend to the susceptible Italian mind the impression of friendliness, importance, and high respect has been done as a means of promoting closer relations between Italy and South America. As a result this trade is growing, the increase in the sale of Italian cotton goods alone being noteworthy. In other lines there is collateral gain. Better steamers are being put on the routes, better men are being sent out, more attention is being paid to the peculiar wants of the markets and to arrangements by which banking and credits can be made easier for the South Americans. An effort is being made to make the South American business man feel that he is dealing with his own people when he deals with Italy. Very much is made of the personal equation.

BUILDING UP A TRADE.

Milan has come to be one of the great cotton-textile markets of the world. During 1906 Milan sent to the United States cotton textiles worth about $45,000, and cotton waste worth nearly $120,000. To the Philippine Islands it sent $100,000 worth of textiles. The records show that whereas the cotton fabric sales to the United States in 1906 were $45,000, they were less than $3,000 in 1905, nothing in 1904 and 1903, and one sale was recorded of about $15,000 in 1902. The Philippine trade in this line did not exist until 1905.

The Italian spinners are confined, for climatic reasons, to threads lower in number than 80s and 110s. In finer threads the English mills continue to have a good lead. Still, considering the immense amount of fabrics woven from threads coarser than these, it can not be said that the market of Italian spinners is greatly narrowed. Twenty-five years ago Italy was one of England's best customers; now she is one of her strongest competitors everywhere. It is the intention of the Milan mills to make Italian cotton textiles second only to Italian raw silk in the scale of exports.

The center of the cotton-textile trade is a few miles north of Milan, at Busto and Gallarate, where there are probably 150,000 looms exclusive of hand looms. If they produce from 25 to 30 yards daily, a fairly close estimate on the total annual output would be more than a billion yards annually. About 300,000 persons are at work on about 5,000,000 spindles. These draw their raw material from a total importation of 700,000 bales of cotton, of which 500,000 come from America, 100,000 from India, and 30,000 from Egypt. Nearly all the machinery is foreign built, a great deal of it English; but the Italians are preparing to build their own looms, several important works having recently been established with that end in view. American machine makers might give serious thought to this phase of the subject, in view of the certain expansion of the Italian textile trade within the next few years.

FOREIGN FIELDS OF TRADE.

Turkey, Roumania, Bulgaria, Egypt, South America, India, and the Philippines are the principal foreign outlets for the trade. Milan is one of the principal selling points in Europe, shipments being handled here for all quarters and in many cases for stock outside the Italian field. There is, in fact, a marked tendency to center the entire cotton brokerage of southern Europe in the Milan exchange. The South American textile trade was created by the efforts of a single Milan merchant who visited that field twenty-five years ago and made a study of it prior to the beginning of Italy's effort as a strong cotton manufacturing factor. It was largely on his report that Milan capital was secured to open the home end of the trade; and the intelligent methods which he advised at that time have since then been applied to many other lines.

It is interesting to note here that out of a total exportation of cotton textiles from the district for the first nine months of 1906, amounting to 202,500 quintals (quintal=220½ pounds), about 90,000 quintals went into South America alone, a gain of 20,000 quintals over the same period of nine months in 1905. Egypt was the next best buyer and Turkey next. The increase in money value of imports of cotton, both raw and thread, in the nine months of 1906, over the same period in 1905, was $3,000,000, the total value of such imports for the period being $37,275,000. The total money value of exports of cotton textiles in the first nine months of 1906 was $15,750,000, a gain over 1905 of $2,280,000. This, and the amount of continental cotton trading done here, for sales throughout the world, constitutes Milan's claim to be the great cotton-goods market of southern Europe.

Italian handmade laces are manufactured at Cantu, a few miles north of Milan. Though Venice lace remains the finest Italian product in this class, much of the stock sold there as genuine Venice lace is in reality made at Cantu, which sells immense consignments to the important traders on the Adriatic. The genuine Venetian lace, which requires from five to ten times the amount of labor and a much finer grade of linen yarn, can not be made in quantities sufficient to supply the market either at home or abroad; hence the "fancy" lace output of the Milan district is known as Point Venice, and is made up in the regular Venetian pattern.

There are many other grades of Cantu lace, of which increasing shipments are made, both to the United States and Canada. The trade is growing rapidly, and seems destined to attain large proportions. Nearly all the Italian lace bought in the American shops comes from Cantu, where about 7,000 persons are engaged in its production. In the year 1906 more than twice as many meters of this stock were shipped to America than for any previous twelve months. Italy itself is a good buyer of the inferior grades of lace, consuming about $250,000 worth annually. Nearly 7,000,000 pounds of bleached linen yarn were imported into Italy during 1905 to be used in the manufacture of laces of various kinds.

CANADA.

TEXTILE IMPORTS.

HOW PREFERENTIAL RATES AID SALES OF BRITISH GOODS.

The value of textile fabrics imported by Canada during the fiscal years 1901 and 1906 is shown in an elaborate table published by the Canadian Manufacturer. Those which are of interest to the trade of the United States are herewith reproduced:

Imports.	General tariff.	Great Britain under 33⅓ per cent preferential.		United States under general tariff.		All countries.	
		1901.	1906.	1901.	1906.	1901.	1906.
DUTIABLE.	*Per cent.*						
Church vestments	20	$234	$1,496	$407	$2,524	$11,691	$23,501
Cotton:							
Cordage	25	1,450	12,107	14,156	8,351	15,658	21,279
Twines	25	27,924	156,305	48,612	82,998	78,383	240,952
Batts and batting	25	427	683	9,926	9,926	10,437	16,026
Knitting yarns	25	18,797	16,289	8,270	28,461	27,270	45,615
Sewing thread—							
Spools	25	131,239	157,071	112,020	178,402	261,125	357,016
Hanks	15	376,764	383,887	83	222	377,781	384,109
Crochet thread	25	3,883	11,456	11,334	9,489	15,585	20,959
Seamless bags	20	704	5,376	8,200	7,164	9,275	18,362
Sheets and quilts	30	1,433	176,420	1,614	17,831	3,203	202,904
Shirts	35	20,021	55,959	21,573	107,537	45,794	173,202
Clothing	35	88,030	232,894	190,107	370,052	314,926	673,319
Blouses and waists	35	834	4,810	14,218	79,057	15,514	87,726
Bags, n. o. p	35	510	7,080	29,790	56,385	30,591	63,523
Lampwick	25	1,115	5,143	7,021	5,398	9,053	10,876
Socks and stockings	35	39,098	104,633	3,479	25,540	91,391	314,495
Tape—							
Not dyed	25	24,635	46,805	2,494	10,222	29,549	62,321
Dyed	35	16,730	18,186	3,179	5,432	25,489	32,521
Towels	30	24,746	94,721	1,343	957	27,355	97,567
Underwear	35	1,561	13,223	4,185	70,564	7,929	100,024
Scrims, lawns, etc	25	115,894	160,868	6,472	7,953	133,586	186,831
Velvets and plush, n. e. s	30	212,909	315,218	37,824	75,894	296,570	470,219
Crapes, black	20	18,989	9,986	502	473	24,438	13,303
Other fabrics, n. o. p	35	20,557	53,605	43,041	112,799	73,517	199,435
Curtains and shams	35	274,506	401,347	55,443	75,248	436,950	634,191
Embroideries, n. o. p	35	9,717	12,058	6,905	8,364	56,579	84,982
Braids, fringes, etc	35	57,225	71,834	103,753	122,112	389,753	454,754
Flowers, artificial	25	47,909	62,176	58,920	85,242	141,488	264,808
Lace, lace netting, etc	35	373,230	745,823	31,977	76,687	799,219	1,702,897
Flax or hemp bags	20	43,172	10,660	10,570	34,824	58,646	117,250
Flax, duck, etc., n. e. s	25	487,199	642,578	15,840	28,644	516,424	689,942
Clothing	35	88,030	33,445	190,107	16,717	314,926	40,524
Hose (fire, lined)	35	766	935	53,095	50,173	54,409	51,262
Rubber packing, mats, etc	35	932	1,364	39,617	67,795	40,759	72,215
Rubber, all other, n. o. p	25	26,482	56,317	179,693	321,006	235,160	414,493
Hats and caps:							
Silk or felt	30	584,398	684,642	475,718	564,624	1,076,004	1,290,538
Straw, n. e. s	30	253,968	330,946	252,187	518,875	547,971	933,365
Mats and rugs, jute, n. e. s	35	92,625	263,834	3,652	27,254	111,043	363,997
Oiled silk and cloth	30	25,804	19,241	52,845	156,477	79,942	177,442
Oilcloth and linoleum	30	309,441	707,899	24,446	26,730	340,888	737,646
Regalia and badges	35	502	1,962	5,499	8,762	6,214	10,422
Ribbons	35	27,012	11,225	34,156	79,342	617,197	1,150,332
Railway rugs and dusters, etc	30	53,331	36,415	15,730	9,197	113,184	51,578
Silk fabrics	30	320,203	363,991	105,640	93,024	2,359,753	3,882,554
Silk blouses and clothing	35	120,389	176,349	75,616	48,600	257,846	303,082
Silk, sewing or embroidery	25	15,419	23,206	9,720	15,297	25,789	39,912
Silk goods, n. o. p., n. e. s	35	35,329	32,815	15,667	18,228	95,262	114,176
Silk velvets, n. e. s	30	113,822	142,910	10,718	11,197	238,287	283,257
Stockinettes for shoemakers	15	11,819	14,112	39,820	58,522	51,639	72,634
Tapelines	25	4,031	11,273	3,738	16,252	8,253	28,446
Twine for nets, hammocks, etc	30	3,108	1,548	11,158	31,035	15,257	33,527
Webbing	20	51,472	61,740	82,778	134,710	139,802	143,586
Window shades, n. e. s	35	728	7,370	348	4,443	1,089	12,095

Imports.	General tariff.	Great Britain under 33⅓ per cent preferential.		United States under general tariff.		All countries.	
		1901.	1906.	1901.	1906.	1901.	1906.
DUTIABLE—continued.							
Wool:	*Per cent.*						
Blankets	35	$29,128	$98,669	$5,311	$4,928	$35,222	$111,490
Cassimeres	35	2,587	1,853,932	48	9,205	6,812	1,977,209
Felt cloth, n. e. s.	35	6,627	10,973	41,138	18,281	50,301	32,588
Flannels	35	51,296	93,429	4,966	1,424	123,435	131,674
Knitted underwear, n. e. s.	35	54,498	258,100	11,080	49,535	94,012	404,027
Bed comforters	35	827	13,286	604	2,274	1,718	16,027
Shawls	30	69,546	77,544	1,688	1,370	93,644	109,118
Shirts	35	12,368	25,566	1,815	3,728	17,009	31,065
Socks and stockings	35	479,189	1,012,426	7,903	15,777	543,012	1,119,281
Underwear	35	79,870	155,989	12,944	43,957	103,821	222,175
All other fabrics, n. e. s.	35	1,928,843	4,107,222	44,273	55,562	3,098,818	5,965,648
Ready-made clothing, n. e. s.	35	371,760	377,999	164,596	262,316	952,812	789,516
Felt, not filled	20	21,221	18,955	40,805	40,893	182,550	195,515
FREE.							
Binder twine		.....	21,818	928,096	1,628,923	928,096	1,650,741
Bolting cloth		36	97	6,387	17,034	6,709	17,593
Bookbinders' cloth		13,688	26,424	17,010	16,005	31,887	44,443
Buckram for hats		2,240	2,621	1,675	6,612	4,174	11,783
Canvas for bicycle tires		1,720	.....	17,259	17,125	18,979	17,125
Coir and coir yarn		None.	428	2,667	13,495	2,667	13,923
Cotton waste		16,461	72,722	250,913	528,832	267,431	613,100
Cotton, raw		28,916	1,185	4,731,812	7,596,729	4,773,993	7,626,625
Duck for belting and hose		37	168	102,279	118,169	102,316	118,337
Jute cloth		620,667	619,673	15,330	27,036	663,752	843,850
Jute yarn		89,906	258,807	43,210	32,085	133,428	290,892

A summary of results shows that of dutiable imports the increase from the United States was $1,912,310 and from Great Britain $11,188,007, out of a total increase of $17,681,114. In free imports the total increase from the United States was $4,122,599 and from Great Britain $645,485, out of a total of $5,009,491.

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60TH CONGRESS, 1st Session } SENATE { DOCUMENT No. 79

REPORT ON LEATHER AND BOOTS AND SHOES IN EUROPEAN MARKETS

By

ARTHUR B. BUTMAN

Special Agent of the Department of Commerce and Labor

TO WHICH ARE ADDED REPORTS FROM CONSULAR OFFICERS IN VARIOUS COUNTRIES, REPRINTED FROM CONSULAR AND TRADE REPORTS

DECEMBER 9, 1907

Referred to the Committee on Commerce and ordered to be printed

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1907

DEPARTMENT OF COMMERCE AND LABOR,
OFFICE OF THE SECRETARY,
Washington, December 5, 1907.

SIR: I have the honor to transmit herewith report of Special Agent Arthur B. Butman on "Leather and boots and shoes in European markets," in compliance with the act making appropriations for the legislative, executive, and judicial expenses of the Government for the fiscal year ended June 30, 1907, approved June 22, 1906, which directs that results of investigations by special agents to inquire into trade conditions abroad shall be communicated to Congress.

Respectfully,

OSCAR S. STRAUS,
Secretary.

The PRESIDENT OF THE SENATE.

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LETTER OF SUBMITTAL.

BROCKTON, MASS., *June 15, 1907.*

SIR: I have the honor to submit herewith a report on the leather and boot and shoe industries of the principal countries of western Europe. My investigations, covering a period of several months, extended over England, Belgium, the Netherlands, France, Italy, Switzerland, Austria-Hungary, and Germany. Market conditions in these countries were investigated with special regard to importations and sales of leather and its manufactures from the United States. The estimation in which American boots and shoes are popularly regarded is briefly described and suggestions offered for enlarging our European sales.

Respectfully,

ARTHUR B. BUTMAN,
Special Agent of the Department of Commerce and Labor.

To Hon. OSCAR S. STRAUS,
Secretary of Commerce and Labor.

INTRODUCTION.

The investigations upon which is based a review of the leather and boot and shoe industries in Europe, as briefly set forth in the accompanying report, had as its principal objects the obtaining of an intimate knowledge of existing industrial conditions in their bearing on trade conditions in our own country, together with a like knowledge of existing difficulties to this trade and the making of suggestions for remedying the same.

Leading American shoe manufacturers are now seeking foreign markets for their products in the representative cities of the world, and that they are meeting with some success is evidenced by the fact that already they are sending their shoes to 60 different countries; but the question which must interest every one of them is: Are they doing all that might be done to enlarge their export business? It is a fact that many things hinder the advance of this trade; among them the difficulties incident to the refusal of our exporters to grant such terms of credit as are allowed by competitors in the various countries where it is desired to introduce goods; slow delivery of goods; careless packing; failure to furnish the exact kind and quality of goods promised, which includes lack of attention to details and a not infrequent disregard of the especial needs and tastes of the various localities.

Another important difficulty and one that should receive prompt attention is the very general imitation by European manufacturers of the American shoe and its advertisement under terms often so misleading as to give the impression that the product is of American manufacture. As a safeguard against this counterfeiting, as well as the flooding of the markets with inferior goods purporting to be of first value, it is suggested that American trade-marks be registered in each country into which our shoes are introduced and that all footwear be stamped not only with the words "Made in the United States of America," but also with the name and address of the local foreign dealer and the price in the various moneys of the principal European countries; that is, if the shoe is to be sold in France, the retail selling price should be stamped on the sole in francs; if in Italy, in lire, etc. The importance of such action can not be too strongly urged. It is desired to bring this fact of imitation before the American shoe manufacturer as it exists, in the hope that it will in no way lessen, but rather stimulate his efforts for further sales of genuine American-made goods.

Traveling salesmen and resident agents each have their own value as factors in trade extension in Europe. The former should be efficiently trained and able to speak fluently the language of the country to which he may be assigned. The method, however, which assures the largest measure of success is that of the established American firm, or, in other words, the European retail store, established and managed by the American manufacturer. Second in value is the exclusive American agency, managed preferably by an American speaking the language of the country, or at least by a native having no other interests. The resident agent would receive his stock direct from the factory, while, under existing methods, American goods often are purchased through agencies in London or Paris, necessitating profits for two or three middlemen and additional transportation charges, which tend to restrict sales both by reason of delay and inconvenience as well as price.

It may not be amiss to again remind our manufacturers that what suits the American trade may not always prove attractive to the foreign markets, and that to secure their trade we must devote care and thought to their requirements.

One obstacle to a greater advance in sales of American footwear in several European countries is the quality of sole leather used for that trade. It is important that the climatic conditions of the various countries be taken into account by our manufacturers. Consideration should also be given to the fact that the custom of wearing rubber footwear (rubbers) is by no means general among Europeans, and that consequently the use of a porous sole leather renders our shoes unfit for winter wear by them.

Our shoe manufacturers certainly know the art of secure and attractive packing, and when goods are furnished to those countries where attention to detail is strictly required we should not be found wanting in this respect. Care should continue to be given to this most important detail, remembering also that the value of the shoe is often enhanced by an attractive carton.

Advertising should be carefully considered. Window cards and illustrated catalogues in the several foreign languages should be furnished by the manufacturer, and space provided in the local newspapers for resident agencies. Money must be spent if we would succeed in the face of active competition.

One great reason for the excellence of the American shoe is the fact that in America each person in his department of the factory is a specialist. The European shoe manufacturer does not specialize; he turns out men's, women's, and children's shoes, cuts sole leather, and makes findings all under the same roof. It has been said, and truly, that the American shoemaker is "the best fed, the best paid, *and* the most skilled in the world," and as a result the excellence

and popularity of his product is evinced in all countries. The name "American shoe" is used as a business medium, and our shoes are everywhere remarked for their comfort, style, and finish.

That we have not done a larger export trade in manufactured articles in the past has been partially, at least, owing to the fact that we were not obliged to seek foreign markets for our products; but we have, however, made a very good showing in shoe exports. Our manufacturers have but to awaken to the possibilities which their unequaled product affords, and to devote the time and money necessary to the understanding of local conditions, the requirements of the people, and their business methods, and having learned these, to deal with them with the same activity and seriousness as are devoted to the home trade.

LEATHER AND BOOTS AND SHOES IN EUROPEAN MARKETS.

THE UNITED KINGDOM.

COMPARISON OF AMERICAN WITH BRITISH TRADE.

No industry in the United States can look back upon a better record than that made by the manufacturers of leather and boots and shoes. The importance of this industry to the United States is manifest by the immense production of the country—a home business fast approaching $400,000,000, and a foreign trade of nearly $10,000,000 per annum—showing that efforts made in recent years to secure foreign markets for our footwear and other leather productions have been attended with a large measure of success. To-day American shoes are sent to 60 countries and may be found in the chief cities of the five continents.

The year 1906 will be memorable for the shoe-manufacturing industry, because for the first time our shoe exports exceeded in value the shoe exports from Great Britain. The comparisons for three years are as follows:

EXPORTS OF SHOES FROM THE UNITED STATES AND GREAT BRITAIN, 1904–1906.

Year.	United States.		Great Britain.	
	Pairs.	Value.	Pairs.	Value.
1904	4,806,279	$7,319,775	8,107,824	$7,696,138
1905	5,672,221	8,650,012	9,149,539	9,159,834
1906	5,336,106	9,653,751	9,527,921	9,539,672

In the number of pairs exported it will be noticed that England is still in the lead, but we are selling better grades, and so take the first place in values. Our increase, moreover, is a recent development, because as far back as 1870 England was exporting shoes to the value of $7,000,000, while our exports were less than $500,000.

EUROPEAN IMITATION OF AMERICAN TANNING METHODS.

For a long time American sole leather found high favor in certain parts of Europe, and would doubtless still be sold there in larger quantities but for the successful efforts of Heyl, Doerr, and Reinhart

at Worms, on the Rhine, to secure the secrets of its production. By putting the chemist and the tanner side by side these men were able to produce a sole leather which they claimed was equal to that of the United States in appearance, if it did not surpass it in durability. The claim was made by Massachusetts and Wisconsin tanners that the German product was by no means as durable as the product of the tanneries of Danvers, Beverly, and other places in this country. One thing is certain in this connection—foreign competitors are sparing no effort to secure a knowledge of our best methods, those that have led to the successful production of excellent leathers of all kinds, and to make new discoveries by original research in the laboratories connected with many of their tanneries. Austria, celebrated for certain leathers, has an excellent tanning school in Vienna. Germany, our most vigilant and forceful rival, established a splendid tanning school in Freiburg, Saxony, 25 miles from Dresden, and supplied it with all the most modern machinery used in this country; and to preside over it as head director secured a man who had been fifteen years a manager of tanneries in Milwaukee.

On one occasion, anxious to learn how American tanners produced such excellent chrome leather, the Germans sent a commission, headed by a distinguished manufacturer of patent leather, to this country to study our methods. If correctly reported, this commission went back only fairly successful, but by pursuing the German method of research, laboratory experimentation, putting the chemist and the practical tanner side by side, they claim to have reached satisfactory results.

VALUE OF AMERICAN EXPORTS AND RELATIVE SHARE OF COUNTRIES.

The story of leather exports from the United States will be found in the tables herewith given. It is interesting to note that in 1892, only fifteen years ago, the total exports of leather and its manufactures amounted to only a little over $12,000,000. To-day it aggregates $40,000,000, and is increasing so rapidly that the $50,000,000 mark is fairly in sight. For the fiscal year ended June 30, 1906, our exports of leather of all kinds aggregated $40,642,858, and of this amount $9,142,748 represents boots and shoes. The table which follows shows the exports in detail for the fiscal year 1906 and the markets to which exported. To illustrate the progress made and the present volume of the trade, comparison is made with the figures for the fiscal year 1902.

GROWTH OF THE EXPORT TRADE OF THE UNITED STATES IN LEATHER AND ITS MANUFACTURES, BY COUNTRIES.

Article and whither exported.	1902.	1906.	Increase (+) or decrease (—).
Leather:			
Sole leather—			
United Kingdom	$5,383,944	$5,956,092	+ $572,148
Japan	278,967	1,333,130	+1,054,163
Belgium	165,094	316,903	+ 151,809
British North America	134,560	155,258	+ 20,698
All other countries	607,292	424,896	— 182,396
Total sole leather	6,569,857	8,186,279	+1,616,422
Kid, glazed, patent, or enameled, splits, buff, grain, etc.—			
Europe	13,868,130	17,107,278	+3,239,148
North America	680,210	1,549,828	+ 869,618
South America	308,799	791,646	+ 482,847
Asia	54,899	861,666	+ 806,777
Oceania	825,038	868,619	+ 43,581
Africa	43,211	51,521	+ 8,310
Total leather other than sole	15,780,277	21,230,558	+5,450,281
Total leather	22,350,134	29,316,847	+7,066,703
Leather manufactures:			
Boots and shoes—			
Europe—			
United Kingdom	2,013,890	1,862,747	— 151,143
Germany	197,937	387,025	+ 189,088
France	97,081	126,239	+ 29,158
All other	80,997	215,133	+ 134,136
Total to Europe	2,389,905	2,591,144	+ 201,239
North America	2,293,560	5,367,349	+3,073,789
South America	165,863	363,310	+ 197,447
Asia	47,379	80,868	+ 33,489
Oceania	1,005,370	552,104	— 453,266
Africa	280,021	187,973	— 92,048
Total boots and shoes	6,182,098	9,142,748	+2,960,650
Harness and saddles	378,775	691,575	+ 312,800
All other leather manufactures	887,316	1,491,688	+ 604,372
Total leather manufactures	7,448,189	11,326,011	+3,877,822
Grand total leather exports	29,798,323	40,642,858	+10,944,525

British markets are by far our most important in practically all lines of leather goods with the exception of boots and shoes, and in foot wear the United Kingdom takes about $2,000,000 worth of American goods annually. The United States is a cattle-raising country, with an abundance of native tanning material. England does not raise the number of cattle sufficient for her requirements, and has very little native tanning material; therefore hides and tanning material or tanned leather must be imported.

The position on sole and heavy upper leathers is a comparatively secure one for the American tanner. Regarding goatskin leathers, American manufacturers perfected, as previously mentioned, the chrome tanning process and English leather dressers have yet to reach the American standard.

Large supplies of box calf are yearly imported from the Continent for English consumption. The American leather trade in England is in the hands of substantial British merchants, many of whom have been for years engaged in its importation.

The detailed leather exports of the United States for the past three fiscal years, with the part taken by the United Kingdom, are as follows:

LEATHER EXPORTS OF THE UNITED STATES TO THE UNITED KINGDOM AND TO ALL COUNTRIES, 1904–1906.

Article.	To United Kingdom.			To all countries.		
	1904.	1905.	1906.	1904.	1905.	1906.
Sole leather	$5,611,423	$4,449,410	$5,956,092	$6,978,497	$9,444,873	$8,186,279
Upper leather:						
Glazed kid				1,512,179	1,576,204	1,922,430
Patent				170,940	166,320	143,590
Splits	11,345,111	11,072,078	11,274,750	15,049,602	15,057,791	17,242,011
All other				1,140,364	1,813,154	1,822,537
Boots and shoes	1,868,894	1,943,845	1,862,747	7,238,940	8,057,697	9,142,748
Harness and saddles				560,346	502,660	691,575
All other				1,329,747	1,318,046	1,491,688
Total	18,825,428	17,465,333	19,093,589	33,980,615	37,936,745	40,642,858

The share going to Great Britain of "Harness and saddles" and "All other" leather in the above table of exports is not detailed in the statistical returns of the Government, and the relatively small amounts can not be included in the total purchases of that country from the United States.

Serious complaints were submitted to me by British leather importers, who maintained that a large quantity of American sole leather had been adulterated to the detriment of the trade, but the same charge was made against other such leather, including that tanned in Great Britain.

Boots and shoes were imported by Great Britain from foreign countries, not including British possessions, for the calendar years 1905 and 1906 as follows:

IMPORTS OF BOOTS AND SHOES INTO GREAT BRITAIN, BY COUNTRIES, 1905 AND 1906.

Whence imported.	1905.		1906.	
	Dozen pairs.	Value.	Dozen pairs.	Value.
United States	90,239	$2,147,046	80,927	$2,165,540
Belgium	42,196	517,236	41,443	531,047
France	29,239	639,415	31,790	609,015
Germany	18,373	228,472	25,423	336,961
Netherlands	34,220	520,570	31,263	443,591
Other countries	197	2,813	101	1,830
Total	214,464	4,055,552	210,947	4,088,084

These statistics show that the United States supplies by far the larger percentage of shoes imported. The following table shows the British export of boots and shoes for the calendar years 1905 and 1906:

EXPORTS OF BOOTS AND SHOES FROM THE UNITED KINGDOM, BY COUNTRIES, 1905 AND 1906.

Whither exported.	1905.		1906.	
	Dozen pairs.	Value.	Dozen pairs.	Value.
Foreign countries:				
Germany	4,678	$74,035	6,842	$117,726
Netherlands	22,082	199,506	22,940	187,136
Belgium	4,950	66,180	6,904	117,777
France	14,513	464,531	20,597	667,251
Portuguese East Africa	7,355	98,352	6,892	90,692
Egypt	6,955	105,341	9,382	145,708
Peru	4,016	52,553	4,829	92,556
Chile	6,315	56,530	6,773	66,837
Brazil	2,186	36,672	2,459	45,570
Argentina	4,912	110,173	14,599	168,785
All other	15,697	215,911	16,005	242,654
Total	93,659	1,479,784	118,152	1,942,692
British possessions:				
Channel Islands	18,103	174,075	17,886	175,073
Africa	390,960	4,870,554	357,612	4,474,207
British India	69,802	836,518	53,488	719,435
Straits Settlements	6,382	67,937	8,418	118,528
Australia	70,050	510,257	90,162	626,046
New Zealand	68,451	725,839	72,771	814,998
West Indies	25,987	221,188	34,716	306,614
Guiana	5,497	45,921	7,122	62,335
Other	18,170	229,597	23,647	282,539
Total	680,402	7,861,886	665,822	7,579,775
Grand total	774,061	9,341,670	783,974	9,522,467

Leicester, the county town of Leicestershire, in the North Midlands, with a population of about 225,000, is the chief seat of the shoe industry in England. The boot and shoe factories of this town number 140, with an average output of about 400 pairs per day each, the largest factory producing from 1,200 to 1,500 pairs per day.

The boot and shoe industry of England has very greatly improved within the past few years, in consideration of which the following facts may be stated: British ports are open to receive American leather and American shoemaking machinery duty free; an American shoe-machinery company has an affiliated organization in the Kingdom, and the principal factories are fitted with the most improved American machinery, and labor is slowly, but gradually, gaining in skill with the advent of modern equipment. However, notwithstanding the splendid showing which the British manufacturer is now able to make over that of a few years ago, it is still impossible for him to produce a shoe equal in all respects to the American product. Until a large number of skilled operatives find their way into the British manufactory, the American shoe must lead by reason of its superb finish and splendid style.

SUPERIORITY OF AMERICAN SHOES.

The American manufacturer has not to convince the English buyer of the superiority of the American shoe—the Englishman already knows this—but the point on which the English buyer must be convinced is that the American manufacturer will furnish exactly the kind and quality promised. The reputation which has been acquired by American-made shoes is the best; but of course the volume of export trade must largely depend upon manufacturing an article suited to the people and the country for which it is destined. If the tastes of the English people were more carefully studied and conformed to, the market for American shoes in England would be a far larger one than at present. One great essential in that country is precision. Dealers insist that when goods are ordered from samples of certain quality and style exactly that quality and that style are desired, and no substitute, though equally good or better, of any part or portion is wanted.

It is evident from figures previously given that while we can sell some of our best grades in the English markets, the manufacturers there are in a strong position with the lower-priced lines, where the labor cost counts for more in proportion, and it is in these lines that the English manufacturers are making steady gains in exporting.

OBSTACLES TO UNITED STATES TRADE.

One of the difficulties which the American shoe manufacturer has to encounter in Great Britain results from the fact that the average retail shoe dealer with only one or two stores relies largely for his supplies upon boot factors, or, as we term them, jobbers; and the average English boot factor is prejudiced against American goods. Furthermore, the factor, or jobber, likes to deal with manufacturers who allow much longer credits than American shoe manufacturers are willing to grant. The result has been that, while we have a considerable shoe trade in Great Britain, those American firms who have done the best have been those who have opened their own stores and deal directly with the public.

It may be of value here to sum up the fundamental principles which stand for a successful American shoe trade with Great Britain. The English carry their conservatism into foreign trade. Goods once established command ready future sales if the quality is maintained, while goods found not as represented are very apt to be discontinued, even though they may afterwards be made equal to the first standard. There must be conformity to English taste and climatic conditions, and honest effort should be made to ship goods when promised.

COST OF MANUFACTURE.

Following is the cost of producing the British-made shoe as compared with the American product:

DETAILED COST OF MANUFACTURING ENGLISH AND AMERICAN SHOES.

Classification.	English (per dozen).[a]	American (per 100 pairs).[a]	Classification.	English (per dozen).[a]	American (per 100 pairs).[a]
	s. d.			*s. d.*	
Cutting outside	1 9	$4.25	Pressing vamps	2½	$0.33
Cutting linings	2	.93	Pressing foxings		.33
Stamping linings		.08	Pressing front of quarter		.41
Skiving	1½	.48	Pressing back stay	½	.33
Week work	3	1.25	Pressing kid tip	½	.16
			Stitching in box toe	½	.25
Total	2 3½	6.99	Stitching tip (straight)	½	.33
			Marking vamp for tip		.16
Making lining	2½	.66	Gumming corners	½	.16
Closing	1½	.25	Gumming eyelet stays		.13
Seam rubbing	½	.08	Gumming vamp lining and marking size	½	.16
Staying, double needle	½	.32	Gumming tongue lining	½	.15
Stitching inside stays, 2 rows		.33	Binding tongue		.20
Stitching back stays	1½	.50	Blacking edges	¼	.16
Stitching foxings	1½	.75	Closing toe lining and stitching tongue	1	.33
Closing on	1½	.33	Lacing and packing	2½	.33
Turning	1	.33	Week work		1.00
Stitching tops	1½	.75			
Eyeleting	½	.33	Total	2 0½	10.45
Vamping	2½	.90			

Classification.	English (per dozen).[a]	American.	
		McKay $1.50 (per 100 pairs).	Welt $2.25 (per 100 pairs).
	s. d.		
Fitting stock	1	$1.50	$2.00
Lasting, pulling over	2½	3.00	2.00
Lasting sides by hand	5		2.00
Lasting toe and seat, ideal			2.00
Lasting sides and toe consol		1.50	
Laying soles	2½	.50	
Trimming uppers			.25
Pulling tacks	3½		.25
Sewing McKay and welting	2½	.67	1.75
Trimming seam			.65
Beating welt			.20
Filling bottom, tacking in shank, cementing bottom			.35
Cementing sole			.10
Sole laying by machine			.32
Rough rounding			.75
Turning channel			.21
Stitching			1.75
Beating out	3½	.58	.58
Randing		.33½	.16⅔
Nailing seats		.16⅔	.16⅔
Nailing heels	2	.50	.50
Slugging		.16⅔	.33
Relasting	1	.42	.50
Heel lining			.16⅔
Heel shaving	1½	.50	.50
Heel scouring	1½	.42	.42
Cutting down heels	½	.16⅔	.16⅔
Scouring breast			.25
Trimming edge	2½	.83	1.50
Stitch separator			.25
Edge setter	5½	.83	1.67
Buffing bottom	2	.42	.50
Naumkeag cleaning		.33	.42
Brushing edge	[b] 2	.04	.04
Brushing stitch			.04
Hand finish	3½	.33	.42
Cutting shank		.25	.25

[a] Same on both McKay $1.50 and welt $2.25.

[b] Seat wheel.

DETAILED COST OF MANUFACTURING ENGLISH AND AMERICAN SHOES—Continued.

Classification.	English (per dozen).	American.	
		McKay $1.50 (per 100 pairs.	Welt $2.25 (per 100 pairs.
	s. d.		
Blacking shank and top		$1.00	$1.25
Burnishing heel	9½	.59	.59
Cleaning by hand		.42	.42
Bottom lining	2	.42	
Kroning, stamping, dressing	1 0	2.00	2.00
Packing, etc., week work, estimated	1 0	2.00	2.00
All other work in bottoming room	3 0½	2.00	2.00
Total	9 6½	21.88½	31.67½
Cutting	2 3½	6.99	6.99
Fitting	2 0½	10.45	10.45
Bottoming	9 6½	21.88½	31.67½
Total	[a] 13 10½	39.32½	49.11½

[a] $27.73 per 100 pairs.

Welt work would be about 15 per cent more than McKay price.

ENGLISH PIECEWORK STATEMENT FOR FINISHERS IN CONJUNCTION WITH MACHINERY.

WOMEN'S WORK—ORDINARY.

Classification.	Per dozen.	Classification.	Per dozen.
Putting in lasts, hinged or solid blocks (lasts to be assorted for use):	*Pence.*	Heel scouring—Continued.	*Pence.*
By hand	1	Iron heel plates (extra)	½
By aid of machine or jack	¾	Brass-plate insertion (extra)	¼
Lasts with loose blocks (extra)	½	Gumming heels (extra)	¼
Work tied over or buttoned (2 lace holes or 3 buttons) (extra)	1	Heel trimming:	
Heel paring:		By hand (heels to be breasted before attached)	1½
Trimming heels and randing same on Smith or similar machine	1½	Definition: Clearing breast of heels, cutting down corners, and bit waist form of heels.	
Leather Wurttembergs (extra)	1½	Heel burnishing:	
Heels over 1½ inches high (extra)	¼	Rockingham or pad and brush, by machine	1¼
Extra for sharpening knives to the heel parer only	[a] 1	Leather Wurttembergs, 1½ inches high (extra)	1½
Plowing out by hand:		If faked by hand (extra)	½
Foreparts only, machine sewn and riveted	¾	Heels colored for the man.	
Waists	½	Seat wheeling:	
Seats	½	By machine	¾
Welted, foreparts only	1½	By hand	2
Welted, waists only	¾	Leather Wurttembergs, 1½ inches high, by machine (extra)	¼
Fair stitched, foreparts only	1	Leather Wurttembergs, by hand (extra)	1
Half-wide welts (extra)	1	Brushing:	
Paring forepart and waists on Bussell or any similar machine	2	Brushing heels, not padded	1
Welts plowed out:		If faked by hand (extra)	½
Welted	2½	Cleaning stitches:	
Fair stitched	2¾	Cumming, boning, and polishing same	3
Bevels	3½	Coloring welts, liquid color, fore parts only (extra)	1
Heel scouring:		Pricking up stitches:	
Rough and fine scouring by 1 man on same machine (heels 1½ inches high, finished)	1¾	By hand, narrow tool	6
Over 1½ inches (extra)	¾	By hand, broad tool (extra)	2
Heel scouring:		By machine, fore parts only	3½
Leather Wurttembergs, 1½ inches high (extra)	3½		

[a] Per week per man.

English Piecework Statement for Finishers in Conjunction with Machinery—Continued.

EDGE SETTING—TWICE SETTING FOREPARTS AND WAISTS OF ALL GOODS WHICH HAVE BLACK WELTS.

Classification.	Standard machine.		Rotary machine.	
	Without wheel (per dozen).	With wheel (per dozen).	With wheel (per dozen).	Without wheel (per dozen).
Ordinary work: [a]	*Pence.*	*Pence.*	*Pence.*	*Pence*
Mock welts	5½	6½	5½	4½
All welts	6	7	5½	4½
Reduction for once setting mock welts with quick edge ink	4½			
Black, welted goods	7½			6½
Black, fair stitched	7½			6½
Color on lip for fair stitched or welted goods (extra)	1			
Ordinary black stunted beveled	8½			7½
Black bevel work, fair stitched	9½			8½
Black bevel work, welted	9½			8½
Red bevel work, ordinary	11			10
Red bevel work, fair stitched	11			11
Red bevel work, welted	11			11

Classification.	Per dozen.
Stitch wheeling, forepart only, ordinary work:	*Pence.*
By hand	2½
By machine	1½
Half-wide welts by hand (extra)	1
Half-wide welts by machine (extra)	½
Bottom scouring:	
Rough scouring bottoms and top pieces with roller	¾
Tips on heels (extra)	1
Slugged bottoms (extra)	1½
Naumkeag:	
Fine scouring bottoms, waists, and toppieces	1½
Scouring front of heels (extra)	½
Inking bottoms (1 color to heel)	1
Quick russet:	
Forepart, black or brown	¾
Waists	½
Toppieces, quick russet, not oakaline	¼
Padding and brushing quick black or russet:	
Bottoms (1 color to heel)—	
Black	1¾
Russet	1½
Foreparts—	
Black	1¼
Russet	1¼
If faked by hand, ½ d. per dozen extra.	
Waists—	
Black	1
Russet	1
Toppieces (including faking by hand)—	
Black	½
Russet	½
Diggering front of heels and filling holes	1¼
Damped-down bottoms:	
Through by hand, old style	1½
Foreparts only, old style	1
Painting bottoms:	
One color	1½
Two colors	2½
Chrysodene front of heels	¼
Sizing bottoms (extra)	½
Cleaning rivets:	
Oakaline work—	
Foreparts	¾
Waists	¾
Toppieces only	½
Black bottoms—	
Foreparts	1
Waists	1
Toppieces only	½

Classification.	Per dozen.
Marking waists across with dull knife once before painting	*Pence.* [b] 8
Marking out:	
Strips, round or square (after painting)	1½
Strips, peaked (after painting)	3
Cleaning strips for inking, round or square	1
Cleaning strips for inking, peaked	2
Cleaning waist iron, strips	½
Marking out for bordering:	
Heel to heel	2½
Foreparts only	1½
Waists only	1½
Painting bordered work:	
Heel to heel	3½
Foreparts only	2½
Waists only	2
Inking:	
Strips, round or square	1½
Strips, peaked	2½
Strips, waist iron	½
Burnishing:	
Marked-out strips, round or square—	
By hand	2
By machine	1½
Peaked strips by hand	3½
Waist iron strips—	
By hand	1½
By machine	¾
Gemming bottoms:	
By hand (after painting), foreparts only	¾
By hand (after painting) through	1
Brushing bottoms:	
By machine (after painting), foreparts only	¼
By machine (after painting) through	¾
Faking by hand and polishing by machine:	
Fiddle waists, painted	1½
Fiddle bottoms, painted	2½
Making gummed fiddles not oakaline or paint:	
Scraping fronts and cutting corners	1½
Marking across waist	¾
Gumming fiddle waist, front of heel and toppiece	2½
Gumming fiddle bottoms, heel to heel, front of heel, and toppiece	4
Marking strips	1½
Dull knifing fiddles	¾
Faking fiddle waist and polishing by machine	4
Faking fiddle bottoms through and polishing by machine	6

[a] The word "ordinary" means machine sewn and riveted work. Edges to be colored and faked by workmen.

[b] Per gross.

English Piecework Statement for Finishers in Conjunction with Machinery—Continued.

EDGE SETTING—TWICE SETTING FOREPARTS AND WAISTS OF ALL GOODS WHICH HAVE BLACK WELTS—Continued.

Classification.	Per dozen.
	Pence.
Making gummed fiddles not oakaline or paint—Continued.	
Faking fiddle waist and polishing by hand	6
Faking fiddle bottoms through and polishing by hand	8
Cleaning off paint and putting on color for top ironing:	
Foreparts by hand	1
All round by hand	1½
Top ironing:	
Foreparts by hand	2
All round by hand	3½
Foreparts by self-feeding machine	1
All round by self-feeding machine	1½
Imitation bunking on oakaline:	
Foreparts by hand	2
Waists by hand	1½
All round by hand	3
Foreparts by machine	1½
Waists by machine	¾
All round by machine	2
Bunking on bottoms other than oakaline:	
Foreparts—	
By hand—	
Bordered	3½
Bunking	4
By machine, bordered	1½
Waists—	
By hand—	
Bordered	2½
Bunking	3
By machine, bordered	1
All round—	
By hand—	
Bordered	6
Bunking	7
By machine, bordered	2¼
Putting color on:	
Bevels, other than black work	2
Buffing paint off bevels	1
Sandpapering bevels ready for coloring	1
Top ironing bevels, other than black work	3
Getting off:	
Cleaning paint off front of heels	½
Gumming and polishing front of heels	1½
Filling up holes in heels	1
Filling defective channels	1½
Renovating strips (touching up strips with hot, dull knife, and faking sides)	1
Crowing once across waists	¾
Faking edges	½
Polishing and brushing by machine	1½
Polishing by hand, after machine	1½
Polishing by hand, without machine	2½
Cleaning patent vamps	1
Cleaning patent galoshes only	1
Cleaning patent caps	¾
Cleaning patent, all round	2

Classification.	Per dozen.
	Pence.
Getting off—Continued.	
Fancy crowing extra (as per arrangement).	
Slipping lasts and pairing up in sizes only	½
Loose blocks (extra)	½
Louis heel work (wood heels) not covered:	
Trimming lifts and toppieces—	
By hand	2½
By machine	1
Trimming corners of heels, by hand	1½
Sandpapering corners of heels by hand	1½
Heel scouring, rough and fine, by machine	¾
Heel padding and seat wheeling by machine	1½
Buffing and sandpapering front of heels and leveling toppieces by hand	4
Crowing under toppieces by hand	1
Crowing sides of heels by hand	1
Cleaning inserted plates by hand	1½
Faking and polishing front of heels and waists, stain or quick russet	1½
Faking and polishing front of heels and waists, stain or quick russet, with toppieces	1½
Getting off heels to be inked and brushed twice by hand, sides of heels to be made good, and burnished, faked, and polished off	8
Louis heel work, leather covered:	
Heel scouring, rough and fine	2½
Padding and seat wheeling	3
Setting toppieces	1½
Naumkeaging foreparts, waists, and front of heels	1½
Painting front of heels, waists, and toppieces	1½
Brushing, faking, and polishing waists and toppieces	1½
Top ironing all round toppieces—	
By hand	1½
By machine	¾
Top ironing front of toppiece by hand	½
Top ironing back of toppieces by hand	1
Polishing by cloth after machine edges and heels only, by hand	2½
Samples and specials to be reckoned 9 pairs to the dozen.	
Women's work, sew rounds:	
Edge paring—	
By hand	1
By machine	1½
Edge setting—	
By hand	4
By machine	3½
Edges to be inked by workmen.	
Sew round work not faked. Samples and specials to be reckoned 9 pairs to the dozen.	

Men's work, sew rounds: To count as women's ordinary work. Single peaked strips 6 pence per dozen. Samples and specials to be reckoned 9 pairs to the dozen.

Women's work, cashmere and ward shoes: 15 pairs to count as 1 dozen of women's ordinary work. Heels over ¾ inch and up to 1½ inches high, extra to parer, ½ pence; heels over ¾ inch and up to 1½ inches high, extra to scourer, ½ pence; heels over ¾ inch and up to 1½ inches high, extra to padder, ½ pence.

Definition of ward shoe: One bar or spring front, leather or rubber toppiece. Samples and specials to be reckoned 9 pairs to the dozen.

Women's work, felt boots: Buttoned and balmorals, 15 pairs to count as 1 dozen of women's ordinary work. Samples and specials to be reckoned 9 pairs to the dozen.

Girl's work, classification of material: Best—calf patent, calf split patent, box calf, black and colored glacé, white hair calf, mock buckskin, best calf (black and colored), best calf kid. Common—glove

hide, levant goat, box hide, persians, brown bellies, levant kip, common calf kid, patent tipping, enameled shoulders.

Prices: Best class, 7–10, 15 pairs to count as 1 dozen of women's ordinary work; 11–1, 14 pairs to count as 1 dozen of women's ordinary work.

Common class, 7–10, 16 pairs to count as 1 dozen of women's ordinary work; 11–1, 15 pairs to count as 1 dozen of women's ordinary work. Samples and specials to be reckoned 9 pairs to the dozen.

Boys' work: 2–5, 10 pairs to count as 1 dozen of women's ordinary work; 7–10, 14 pairs to count as 1 dozen of women's ordinary work; 11–1, 12 pairs to count as 1 dozen of women's ordinary work. Samples and specials to be reckoned 9 pairs to the dozen.

CANVAS WORK, MEN'S, WOMEN'S, BOYS', AND GIRLS.

Classification.	Per dozen.	Classification.	Per dozen.
	Pence.		*Pence.*
Putting in lasts	½	Padding black toppieces	½
Heel paring and randing	1½	Gemming bottoms	½
Plowing out, all round	1	Painting through, one color	1
Forepart paring, waists, seats, and all round	1½	Brushing bottoms by machine	½
Heel scouring, rough and fine (heels not to exceed 1½ inches high)	1	Top ironing all round	½
Coloring heels, any color	½	Imitation bunking all round on oakaline by hand	3
Padding and brushing heels and seat wheeling	¾	Imitation bunking all round on oakaline by machine	2
Cutting down corners of heels	½	Getting off by hand, cleaning paint off front of heels, polishing up heels and edges with rag by hand, and slipping lasts	1½
Edge setting and stitch wheeling, rotary machine with wheel	3½	Cleaning paint off front of heels	½
Edge setting, rotary machine without wheel	2½	Rubbing off edges and heels by machine	½
Welts (extra), edges to be colored by workmen	1	Polishing edges and heels by hand after machine	½
Scouring bottoms and toppieces	½	Slipping hinged lasts	½
Naumkeaging, fine scouring bottoms, waists, and toppieces	½	Slipping lasts with loose blocks (extra)	½
Staining natural bottoms	½	Tying up by machine	½
Inking toppieces	½	Polishing after white bottoms (extra)	½

Samples and specials to be reckoned 9 pairs to the dozen.

Children's work, 4–6 (classification of material): Best—calf patent, calf split patent, box calf, black and colored glacé, white hair calf, mock buckskin, best calf (black and colored), best calf kid. Common—glove hide, levant goat, box hide, persians, brown bellies, levant kip, common calf kid, patent tipping, enameled shoulders.

Prices: Best, 16 pairs to count as 1 dozen of women's ordinary work; common, 18 pairs same. Samples and specials to be reckoned 9 pairs to the dozen.

Nursery work (riveted and machine sewed): Definition—A boot or shoe with a single sole, one lift, and toppiece. The sizes, half a size less than 4–6 work and the range 2's to 6's.

Classification.	Per dozen.	Classification.	Per dozen.
	Pence.		*Pence.*
Putting in lasts by hand	4	Painting or staining, two colors	1½
Plowing out, heel to heel, by hand	¾	Painting or staining black or colored toppieces (extra)	½
Plowing out seats by hand (extra)	½	Padding black toppieces	½
Paring heels only by hand	1	Cleaning rivets, foreparts, and waists	1
Paring heels only by machine	¾	Cleaning rivets and toppieces	½
Paring all round, including heels, and taking out seats by hand	2½	Faking bottoms and toppieces	½
Paring all round, including heels, and taking out seats by machine	1¾	Gumming bottoms and toppieces	½
Paring foreparts and waist by hand	1½	Brushing bottoms and toppieces	½
Paring foreparts and waists by machine	1	Top ironing, heel to heel, by self-feeding machine	½
Cutting off heel fronts	¾	Top ironing, heel to heel, and putting on color by hand	1½
Heel and edge setting operations combined of foreparts and stitch wheel, heel set and seat wheel, 1 machine	4	Top ironing all round, including toppieces, by machine	¾
Heel and edge setting operations without stitch wheel or seat wheel[a]	3½	Top ironing all round, including toppieces, and putting on color by hand	1½
Stitch wheeling, foreparts only, by hand	1	Cleaning fake and ink off patent	½
Seat wheeling by machine	½	Crowing across	½
Scouring bottoms and toppieces	½	Getting off, polishing edges and heels by hand, and slipping lasts	1½
Naumkeaging bottoms and toppieces	½	Tying up by hand	½
Marking across with dull knife	½	Tying up by machine	½
Painting or staining, one color	1		

[a] Edges to be colored by workmen.

Samples and specials to be reckoned 9 pairs to the dozen.

FRANCE.

SUPERIOR QUALITY OF FRENCH FOOTWEAR.

After England and Germany, France is our strongest competitor in the manufacture of boots and shoes. Distinguished for the good taste and good quality of her manufactures generally, she produces perhaps the finest footwear of any European country, notwithstanding which the American shoe is well known and constantly growing in popularity throughout the Republic. The factories of the country number about 1,200 and are situated principally in Paris, Lyon, Limoges, Marseille, Nancy, and throughout the southern departments. These factories are in most instances small, but well equipped with modern shoemaking machinery, and in many instances where this modern equipment does not exist there are apparent movements on foot for its introduction. The factories being small their output ranks accordingly, that of the largest, I am informed, not exceeding 5,000 pairs per day, while the average output of all factories throughout the country would not exceed 400 pairs per day each.

The machine-made shoes are the Goodyear and Blake sewn. In many of the factories hand-sewn work is still carried on in connection with the machine work. All grades of shoes are manufactured, from a grade retailing from 9 francs 50 centimes ($1.83) or 10 francs 50 centimes ($2.03) per pair to one retailing for 35 francs ($6.76) per pair in machine made; while in hand-sewed work the shoes are sold as high as 60 francs ($11.58) per pair. The average price, however, is from 15 francs ($2.90) to 18 francs ($3.47) per pair.

The French shoe is long and narrow in shape with very high vamp, a style which does not perhaps appeal to the idea of the American manufacturer for either elegance or comfort. I am informed that the French manufacturers are growing more and more inclined to adopt American shapes, and in fact are imitating the American shoe in every detail possible.

IMITATIONS OF AMERICAN SHOES.

The following instance of imitation of American shoes came under the observation of the writer: After some difficulty, for the French do not readily open the doors of their industries to foreign inquirers, admission was gained to a French factory in Paris. The resemblance to an American factory is in many ways marked. The factory visited is said to be one of the best in France, though small, its daily production being about 1,000 pairs. A factory of the same size in the United States would be producing at least 4,000 pairs per day, as our method of installing machinery is much more compact, the French manufacturer seemingly wasting a large amount of floor space.

While in conversation with the superintendent a workman approached and handed him a shoe, also a piece of sole leather which had been stained and polished to a color as nearly resembling that of the sole of the shoe as possible. I remarked upon the fine appearance of the shoe, which thereupon was shown me. It may not come as a surprise when I state that the article in question was a shoe of a well-known American manufacturer of highest grade footwear. It was being imitated in every detail, even to the polish on the sole. I found in this factory many shapes of American design as well as those of typical French style.

IMPORTS OF FOOTWEAR FROM THE UNITED STATES.

The imports of boots and shoes from the United States into France for the fiscal years 1904, 1905, and 1906 were as follows:

IMPORTS OF BOOTS AND SHOES INTO FRANCE FROM THE UNITED STATES, 1904–1906.

Year.	Pairs.	Value.
1904	30,817	$87,553
1905	21,292	64,723
1906	40,220	126,239

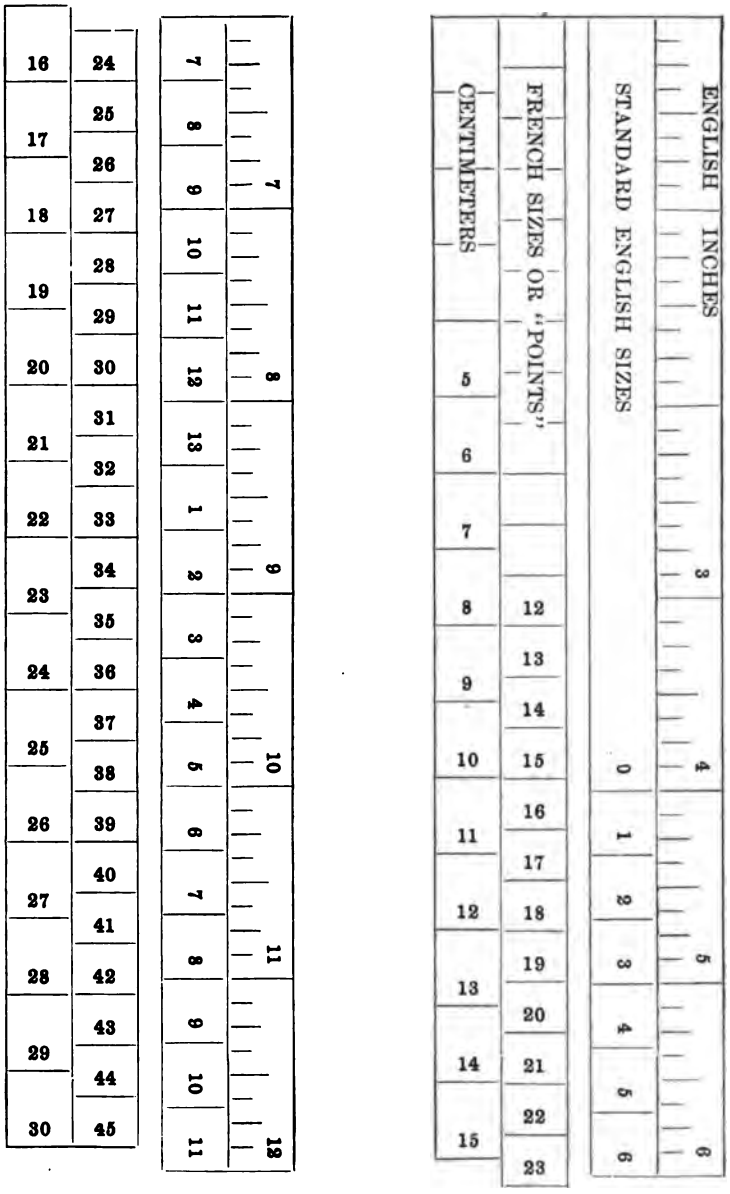
The decrease in 1905 is partially attributed to an increase that year in imports from England, which was nearly equal to the decrease in imports from the United States. The figures for 1906, however, show the growing popularity of the American shoe, and sales could be very greatly increased if our manufactures would exhibit the same enterprise that is displayed in Paris by the British, who have a large number of stores, not only in Paris but in other cities of France, in which shoes of English manufacture are sold exclusively. In addition to these exclusively English stores there are business houses throughout Paris where English shoes form a portion of the stock in trade.

It is believed that as soon as American shoe manufacturers are sufficiently desirous of obtaining foreign trade to be willing to invest the required amount of capital in this way, establishing retail stores and conducting them under American management, the volume of the shoe export trade from the United States will largely increase. Among all the manufactures of our great manufacturing country there is probably no other product which could be more successfully and profitably placed on foreign markets than the American shoe. The popularity of the article is manifested in many ways. Even in the more remote towns one finds a pair or two of American shoes used as the center of advertising attraction. A sample pair of shoes of American make, exhibited in a window to draw the trade, frequently develops for the inquiring purchaser a stock within manufactured in a foreign country other than the United States, but by

American machinery. Nevertheless the name in the window has procured for the shopkeeper a customer.

FRENCH METHOD OF MEASUREMENT.

The French method of designating sizes is altogether different from that employed by the American manufacturer, as is shown by the accompanying table of measurements:



Half sizes are not produced by the French manufacturer.

The French manufacturer designs his product on American lines and exhibits the "Forme Americain." The English manufacturer buys our upper leathers, thereby showing his good sense and business foresight, uses a last of American shape, and places his shoe on the foreign market advertised accordingly "American leather," "American form." In thus advertising his product the popularity of our shoes is more strongly proven, while American rights are in no way infringed upon.

AMERICAN SHOE STORE IN PARIS.

A firm of well-known American manufacturers have recently established a large and well-appointed retail store in Paris. It is the only exclusively American shoe store in France established and carried on by the American manufacturer. This firm has been established in Great Britain for seven years, and now has five stores in London, one in Manchester, one in Liverpool, one in Leeds, two in Birmingham, one in Edinburgh, one in Glasgow, and one in Belfast. The testimony of the manager of the Paris store, which is the head depot for continental trade, should be of value to American manufacturers wishing to enter foreign markets, coming as is does from a man of several years' experience in retail shoe stores in different foreign cities. He says:

> We owe the success of our business to a sincere and constant effort to meet the special needs and cater to the various tastes of the people in the countries to which we have introduced our goods.

STYLES THAT SELL BEST.

Parisian customers are taking kindly to the American product, and the business, though at present in its infancy, bids fair to meet with the same success in Paris as in London. Shoes are sold by the American firm at the fixed price of 25 and 32 francs ($4.82 and $6.17) per pair, respectively, the same prices obtaining for both women's and men's shoes. "Forme Spanish opera," or the Spanish opera last, a long narrow shape with high vamp and Louis XV heel, is most largely used for ladies' footwear, and a button shoe is generally preferred for Parisian trade, although laced boots and a few oxfords are being introduced. Bright and patent kid McKay, bright and patent kid welt, glazed kid and vici bals, buttons, and oxfords, glazed kangaroo bals, buttons, and oxfords are the styles and leathers commanding best sales in women's goods.

In men's footwear lasts of forms typically French in style as well as those of American design are used. The gray gaiter top and tan chrome-ooze top, in buttons, is a fashionable shoe. Patent kid, vici, tan willow, chrome Russia calf (light weight), vici calf, radium calf, and willow calf bals, vici and patent kid button, and vici Blucher

are the leathers and styles employed as the most desirable for men's wear.

American-made shoes are on sale in many French cities, and "Chaussures Americains" are frequently advertised. These are in many cases imitations of our products. Several pairs of men's shoes were exhibited in the window of one retail dealer bearing the following signs surmounted by a small American flag (this method was noted in many retail shoe stores throughout continental Europe as the insignia of advertisements of goods of American make, or purporting to be such): "Forme Roosevelt," "Forme McKinley" (spelled McKimley), "Forme Washington." Personal investigation makes it certain that no American marks were in these models.

AMERICAN TRADE INCREASING.

That the American shoe trade is increasing in the various localities is beyond all doubt, but the development of the export movement is retarded by the fact that the trade is done indirectly. It will be readily understood that shoes reaching southern markets, for instance, through second or third hands, and sent by rail over long distances, are not in a favorable situation to compete in a region where all successful competition is largely a matter of price. It is suggested that the ports of southern France might serve more effectively as distributing centers for this region.

A certain advance may be made if American manufacturers will send personal representatives to France, thus coming into closer relation with trustworthy firms. A more successful status will be gained, however, when our firms open their own retail stores, dispensing American products known to be of genuine American manufacture. Imitation by local manufacturers forms a strong factor in competition. Even though American trade-marks are registered in foreign countries, the laws of some of those countries are not sufficiently strict to prevent infringement upon them. Shoes of several American manufacturers are on sale in many retail shoe stores in Paris, together with goods of domestic and English manufacture. This method of sale naturally is not so advantageous to the American manufacturer as the one already mentioned and advised. The interest taken by a foreign dealer in an American product, especially when handling goods of his own nation's manufacture as well, can not be so great as that shown by the American desirous of establishing a firm footing in the foreign market, and having accomplished this, to constantly push sales of his product.

PRICES AND CUSTOMS DUTIES.

As already stated, the button shoe for both women and men is often found on the French market and is to-day much more largely

produced by the domestic manufacturer than either bals or low cuts. These latter styles are, however, becoming to a degree popular by introduction in American goods, and their manufacture is now being undertaken in France. I am informed by a reliable boot and shoe importer in Paris that if the American manufacturer would make a shoe of good wearing quality to retail here for 22 francs ($4.24) a suitable market might be found for the same. Shoes of English manufacture retail from 16 francs 50 centimes ($3.17) to 33 francs ($6.37).

The duty on American shoes entering France is 2 francs 50 centimes (48 cents) for bals or buttons, 1 franc (19.3 cents) for oxfords or low cuts per pair. This duty applies to both men's and women's footwear, and is levied irrespective of value. The freight charges cost approximately 50 centimes (about 10 cents) per pair from the United States. Goods are generally purchased thirty days, 2 per cent discount; ninety days, net.

The duty upon printed or advertising matter imported into France from the United States is as follows: Printed in black upon unglazed paper, $19.30 per 220 pounds; the same on calendered paper, $28.95; printed in black on common cards, $4.82; the same on calendered cards, $5.79; printed in colors or gold on common paper, $48.25; the same on calendered paper $57.90; printed in colors or gold on common cards, $14.47; the same on calendered cards, $15.44.

MARKET FOR FINDINGS.

American upper leathers of the following sorts—glazed kid, box calf, willow calf, splits, buff, and grain—are quite extensively used in French factories. The value of importation of those grades for the year 1905 was $543,489.

I was informed that factories established for manufacturing solely shoe findings (box toes, counters, welting, etc.), so often found in the United States, are unknown in France. All this work is done as required for consumption of each special factory by the manufacturer of the finished shoe and under the same roof. A market might be afforded in this line to the American manufacturer who would properly introduce his goods and await the development of the trade, which would doubtless be slow at first.

COST OF PRODUCTION.

The cost of production in France, as in England, is much less than in the United States. Production is figured likewise on a different basis.

Wages and piece prices paid vary according to locality, cost of manufacture being greatest in Paris. The annexed table shows the

staff required for a daily production of 300 pairs of Goodyear shoes in a Paris factory (1 franc = 19.3 cents):

COST OF PRODUCING 300 PAIRS OF GOODYEAR SHOES IN A PARIS FACTORY.

Class of labor.	Surface, square meters.	Employees.			Cost per dozen pairs.	Wages.	
		Men.	Women.	Youths.		Each.	Total.
					Francs.	*Francs.*	*Francs.*
Gemming insoles			2		0.35	4.375	8.75
Lasting, pulling over by hand	2.80	6			2.00	8.33	50.00
Operators on consolidated		2			.75	9.735	18.75
Pulling out the nails, upper trimming, and pounding up		1			.30	7.50	7.50
Sewing in welts (Goodyear)	1.50	2			.60	7.50	15.00
Inseam trimming	1.00	1			.30	7.50	7.50
Welt beating	1.00			1	.12	3.00	3.00
Filling and shank fixing		2			.60	7.50	15.00
Cementing soles	1.50	1			.30	7.50	7.50
Laying soles	1.50	1			.30	7.50	7.50
Rough rounding and channeling soles							
Channel opening and shank skiving	2.00	1			.20	5.00	5.00
Sole stitching (rapid Goodyear)	1.50	2			.60	7.50	15.00
Channel laying and sole leveling	3.00	2			.50	6.25	12.50
Stitch separating	1.50		1		.20	5.00	5.00
Heel-seat trimming and finishing off shank edge where it meets heel breast	1.50	1			.25	6.25	6.25
Heel attaching	2.00	1			.30	7.50	7.50
Toppiece slugging and heel seat-nailing	3.00	1			.30	7.50	7.50
Heel trimming and breasting	2.00	1			.30	7.50	7.50
Heel scouring (sandpaper not included)	1.50		2		.30	3.75	7.50
Edge trimming	1.50	2			.60	7.50	15.00
Edge inking and setting	2.00	3			.90	7.50	22.50
Sole buffing	1.50		1		.20	5.00	5.00
Sole buffing on Naumkeag	1.50		1		.20	5.00	5.00
Finishing soles and heels	2.00		3		.60	5.00	15.00
Beading heel seats, etc	1.00			1	.15	3.75	3.75
Cleaning up and pulling out last		4			1.15	7.18	28.75
Treeing	4.50	3			.90	7.50	22.50
Total	41.30	37	10	2	[a]13.27		331.75

[a] Cost per pair, 1.1058 francs.

AVERAGE PRICES PAID TO OPERATORS AND WORKMEN FOR THE MANUFACTURE OF GOODYEAR AND BLAKE MADE SHOES AT PARIS.

Item of cost.	Francs.	Item of cost.	Francs.
Rough stuff cutting, per day	7.00	Sole stitching, Goodyear rapid (women), per dozen	0.90
Channeling Goodyear soles, do	6-7.00	Sole sewing, Blake, all around forepart, including shank, per dozen	.30
Channeling Blake soles, do	6-7.00	For shank only, do	.20
Sole molding, do	6.00	Channel laying, do	.20
Channel opening for Blake, do	6.00	Beating out and leveling soles, do	.50
Gemming insoles, includes lip turning and laying cloth, per 100 pairs	4.00	Nailing heel seats, do	.10
Cutting or clicking, per pair	.25	Stitch separating by machine, do	.20
Upper fitting, do	.60	Heel stamping, per 100 pairs	.75
Upper stitching, do		Heel attaching, per dozen	.30
Counter skiving, per day	6.00	Toppiece slugging by machine, do	.15
Box-toes skiving, do	6.00	Heel trimming, do	.15
Pulling over by hand, per pair	0.20-.25	Heel breasting, do	.15
Lasting on consolidated, per dozen	.84	Edge trimming (randing out included), per dozen	.70
Welt sewing on Goodyear machine (men), per dozen	.80	Heel scouring, per dozen	.20
Welt sewing on Goodyear machine (women), per dozen	.90	Inking and edge setting, do	.60
Sole sewing on Blake machine, do	.25		.70
Inseam trimming, do	.40		.80
Welt hammering, do	.10		.90
Pounding up by hand after lasting for Goodyear, per 100 pairs	4-5.00		1.00
Filling and fixing shank pieces, per dozen	1.00		1.10
Sole laying, Goodyear, do	.40	Inking and finishing heels and seat wheeling, per dozen	.20
Blake sole laying, taper tacker, do	.25	Sole buffing, do	.25
Rounding and channeling on last, do	.50	Shank and sole buffing, by Naumkeag, per dozen	.30
Shank skiving on last, do	.15	Sole and shank finishing, including laying colors, per dozen	0.70-.80
Channel opening on last, do	.15	Cleaning up and taking out last, do	1.00
Sole stitching, Goodyear rapid (men), per dozen	.80		

COST PRICE, AT PARIS, LABOR INCLUDED, FOR LASTING A PAIR OF SHOES (FRANCS 13) WITH THE CONSOLIDATED LASTING MACHINE (BLAKE SEWN).

Item of cost.	Francs.
Operator on consolidated lasting machine	0.035
Pulling over (by hand)	.15
Filling in and pounding up	.08
Sole laying and pulling out last	.03
Furniture and preparation of material (tacks, steel strip, counter skiving, sole molding, channel opening)	.02
Total	.315

AVERAGE PRICES PAID TO OPERATORS AND WORKMEN FOR THE MANUFACTURE OF GOODYEAR AND BLAKE MAKE OF SHOES AT NANCY.

Item of cost.	Francs.	Item of cost.	Francs.
Rough-stuff cutting, per day	3.50–6.00	Shank skiving on last, per day	2.00–2.50
Channeling Goodyear soles, per doz	a.05	Channel opening on last, do	2.00–2.50
Channeling Blake soles, do	.05	Sole stitching, Goodyear Rapid, do	5.50–6.00
Sole molding, per day	3.00	Sole sewing, Blake, according to article and firm, per doz	.15–.30
Sole molding (piecework), per doz	.03–.04	Channel laying (included in the following operation):	
Channel opening for Blake (in some firms this work is done by the lasters, but in others it is paid), per doz	.02–.04	Beating out and leveling the soles, per dozen	.25–.50
Gemming insoles, do	.05–.07	Nailing heel seats, per day	3.00–3.50
Cutting or clicking, pairs uppers, per dozen	2.00	Stitch separating by machine, per day	3.00–3.50
Cutting or clicking, per day	4.50–6.00	Heel stamping, per day	4.00–4.50
Upper fitting, per doz	.50	Heel attaching, do	4.00–4.50
Upper stitching, do	2.00–3.50	Heel piecework, per doz. pairs	.12
Counter skiving, do	.03	Topplece slugging by machine, per day	3.00–4.00
Box-toe skiving, do	.05	Heel trimming, per day	4.00–5.00
Pulling over by hand, per pair	.05–.10	Heel breasting, do	4.00–5.00
Lasting on consolidated machine, per pair	.05–.07	Edge trimming, do	5.00–6.00
Welt sewing on Goodyear machine, per day	5.00–6.50	Heel scouring, do	3.00–3.50
Sole sewing on Blake machine, according to article and firm, per doz	.15–.30	Inking and edge setting (some firms pay per dozen $0.50), per day	4.50–5.00
Inseam trimming, per day	3.00–3.50	Inking and finishing heels and seat wheeling, per day	3.00–4.50
Welt hammering, do	3.00–3.50	Sole buffing, do	2.00–3.50
Pounding up by hand after lasting, for Goodyear, per day	3.00–4.50	Sole buffing, piecework, pairs, per dozen	.10
Filling and fixing shank pieces, per dozen	.60–.75	Shank and sole buffing by Naumkeag, same as for sole buffing.	
Sole laying, Goodyear, per day	5.00–6.00	Sole and shank finishing, including laying the colors, per day	2.50–4.50
Blake sole laying by taper tacker, operator paying out of this amount the tack strip and taking out the lasts, per doz	.03–.07	Cleaning up and taking out the last according to the ability, per day	2.00–3.50
Rounding and channeling on last, rpe day	5.00–6.00		

a About.

AVERAGE PRICES PAID TO OPERATORS FOR THE MANUFACTURE OF GOODYEAR SHOES AT LIMOGES.

Item of cost.	Francs.	Item of cost.	Francs.
Pulling over, per 100 pairs	15.00	Heel trimming, per doz	0.25
Operator on consolidated lasting machine:		Edge and shank trimming, do	.40
Ordinary work, per 100 pairs	5.00	Heel scouring, sandpaper included, do	.20
Patent leather and horsehide, do	6.00	Stitch separating, do	.25
Pulling out nails, etc, do	.25	Edge finishing:	
Welt sewing, Goodyear, do	3.00	Men, do	1.00
Inseam trimming, per doz	.20	Women, do	.75
Filling in, per 100 pairs	5.00	Sole and top-piece buffing, per 100 pairs	2.50
Welt beating, do	.50	Sole stitching, Goodyear Rapid:	
Putting on cement and sole laying, do	2.50	Men, do	4.00
Tough rounding and channeling and shank skiving, per 100 pairs	2.80	Women, do	3.50
Channel opening, do	.75	Nailing heel seats, do	.75
Heel-seat trimming, do	.75	Heel attaching, do	2.00
Sole leveling on twin leveler, do	3.00	Slugging top pieces:	
Plowing out heel seat before trimming, per 100 pairs	1.00	Men, do	1.50
		Women, do	1.00

AVERAGE PRICES PAID THROUGHOUT FRANCE TO OPERATORS AND SHOEMAKERS FOR MAKING GOODYEAR AND BLAKE SEWN BOOTS AND SHOES.

Item of cost.	Francs.	Item of cost.	Francs.
Rough stuff cutting.....per day..	6.00	Rounding and channeling on last, per dozen.....	0.40
Channeling Goodyear soles.....do....	6.00	Shank skiving on last.....per dozen..	.15
Channeling Blake soles.....do....	6.00	Channel opening on last.....do....	.15
Sole molding.....do....	4.00	Sole stitching Goodyear Rapid....do....	.60
Channel opening for Blake.....do....	4.00	Sole sewing Blake, all around forepart, including shank.....per dozen..	.30
Gemming insoles, including lip turning and laying cloth.....per 100 pairs..	4.00	Sewing shank only.....do....	.20
Cutting or clicking.....per pair..	.25	Channel laying.....do....	.20
Upper fitting and stitching.....do....	.60	Channel closing and leveling soles..do....	.30
Counter skiving.....per day..	5.00	Nailing heel seats.....do....	.20
Box-toes skiving.....do....	5.00	Stitch separating by machine.....do....	.20
Pulling over by hand.....per pair..	.15	Heel stamping.....per 100 pairs..	.60
Lasting on consolidated—		Heel attaching.....per dozen..	.25
Welt.....per 12 pairs..	.75	Toppiece slugging by machine....do....	.15
Blake.....do....	.60	Heel trimming.....do....	.15
Welt sewing on Goodyear machine, per dozen.....	.75	Heel breating.....do....	.15
Sole sewing on Blake machine, per dozen.....	.25	Edge trimming.....do....	.60
Inseam trimming.....per dozen..	.30	Heel scouring.....do....	.20
Welt hammering.....do....	.10	Inking and edge setting.....do....	.60
Pounding up by hand after lasting, per 100 pairs.....	4.00	Inking and finishing heels and seat wheeling.....per dozen..	.20
Trimming and fixing shank pieces, per dozen.....	1.00	Sole buffing.....do....	.25
Sole-laying Goodyear.....per dozen..	.30	Shank buffing by Naumkeag.....do....	.15
Blake sole-laying taper tacker...do....	.20	Sole and shank finishing, including laying colors.....per dozen..	0.80-.90
		Cleaning up and taking out last....do....	1.00

GERMANY.

FACTORIES AND METHODS OF OPERATION.

German manufacturers have the advantages of technical skill and great success in introducing their various products upon foreign markets. Statistics prove, however, that the American shoe is finding a constantly increasing sale in German markets, and local dealers agree as to its popularity with the purchasing public.

Of establishments registered as shoe factories and employed in the manufacture of shoes there are in Germany about 1,400. A large majority of these would, however, not be recognized as shoe factories from the American point of view. Many of them are only small shoe shops, where manufacturing is conducted wholly by hand, or concerns from which material is given out to hand workmen, who complete the shoes in their own homes. Many of these establishments might also perhaps be better described as little cobbling shops. Of factories fitted up with machinery there are about 600, but it must not be inferred that all of these factories have anything like a full equipment of machinery, much less that their machinery should be regarded as constituting a modern plant. The factories would be included in this number which have, perhaps, a press and a pair of leather rollers and a sole-sewing machine. Of factories fitted up for the manufacture of welt shoes there are between 150 and 200, some of which operate on a small scale.

The shoe factories are scattered throughout the country, there being very few centers containing any large number of factories.

The principal groups are at Pirmasens, Weissenfels, Tuttlingen, and Erfurt. The average output per day for the whole of the 600 factories mentioned would not exceed 125 pairs each, owing to the large proportion of small establishments. The largest output per day for any individual factory is one at Nuremberg, which is probably the largest in Germany, the output during 1906 having been 10,000 pairs per day. All grades of shoes are manufactured, ranging in retail prices as follows: Men's, 95 cents to $2.85; women's, 89 cents to $2.38; children's, 65 cents to $1.31 per pair in machine made. In hand-sewn work the retail prices are: Men's, $2.50 to $5.25; women's, $2.26 to $4.28; children's $1.77 to $2.38 per pair.

USE OF AMERICAN SHAPES AND LEATHER.

The characteristic German shape of shoe is broad and, from an American standpoint, clumsy in appearance. American shapes are being introduced, but as yet only to a limited extent and in a modified form, being confined to welt shoes, which form a comparatively small proportion of the total production, and to a very few fine McKay shoes. The principal leathers employed by the German manufacturer are kips, vici kid, box calf, horsehide, and splits. German importations of leather from the United States for the fiscal years 1904, 1905, and 1906 were as follows:

IMPORTS OF LEATHER INTO GERMANY FROM THE UNITED STATES, 1904–1906.

Kind.	1904.	1905.	1906.
Sole	$2,145	$8,506	$4,834
Glazed kid	75,563	85,591	72,697
Patent or enameled	809	.....	390
Splits, buff, grain, and all other upper	719,118	994,494	1,539,732
All other	28,265	42,390	75,561

The importation of boots and shoes from the United States during the same years were: In 1904, 166,606 pairs, valued at $352,619; in 1905, 137,229 pairs, valued at $327,784, and in 1906, 227,565 pairs, valued at $387,025.

A retail store has been established at Berlin where American goods are exclusively handled. This store is attractive in appointment, thoroughly up-to-date, and well stocked. I was assured that the business yielded satisfactory returns, that the goods are well liked, and that sales of the same are constantly increasing. Box calf and vici kid are at present the best selling leathers for both men's and women's footwear, these varying in price from $4.96 to $6.82 in each instance. American shoes are also on sale in many retail shoe stores throughout Germany, together with goods of domestic manufacture.

COST OF PRODUCTION.

The following is the average cost of manufacture of McKay, pegged, and Goodyear work in Austria and Germany (100 pfennigs = 1 mark = 23.8 cents):

McKAY AND PEGGED WORK.

Item of cost.	Cost per dozen pairs.		
	Men's.	Women's.	Children's.
	Pfennigs.	*Pfennigs.*	*Pfennigs.*
Assembling lasts	5- 6	5- 6	5- 6
Tacking on insoles	5- 6	5- 6	5- 6
Pasting in counters and toe tips	24- 30	24- 30	20- 24
Fastening the upper on the heel seat	9- 12	9- 9	6- 8
Pulling over with machine	10- 12	10- 12	8- 10
Royalty for pulling-over machine	12- 15	12- 15	10- 12
Lasting by consolidated laster	30- 36	24- 30	18- 24
Royalty for consolidated laster	22- 24	20- 24	16- 20
Trimming toe tips	4- 5	4- 5	3- 4
Pounding up by machine	8- 10	8- 10	6- 9
Filling up bottoms, tacking on shank by machine	4- 6	4- 6	3- 4
Welt tacking with welt tacker	6- 12	6- 12	4- 8
Sole molding and channel opening	12- 14	10- 12	8- 10
Sole tacking and heel-seat nailing	15- 20	15- 20	10- 15
Pounding up heel seat and last pulling	16- 20	16- 20	12- 16
Sewing with McKay sewing machine	18- 24	14- 18	12- 12
Pegging with Davey pegging machine	14- 18	14- 18	12- 12
Pegging with other machines	32- 36	28- 36	24- 24
Channel cementing, closing, and leveling	24- 30	22- 26	16- 22
Tacking on welt on the top of heel	3- 4	3- 4	3- 3
Assembling heel pieces, pasting and compressing by machine	12- 16	18- 24	12- 12
Heel attaching and filling up with nails	14- 18	16- 24	9- 12
Slugging top lift with universal slugger	6- 9	6- 6	5- 5
Heel trimming and scouring	9- 12	9- 12	6- 9
Heel breasting	6- 9	6- 9	6- 6
Welt and edge trimming for smooth edge	16- 22	16- 18	12- 14
Relasting	12- 12	12- 12	10- 10
Scouring heel breast	6- 8	6- 10	4- 4
Heel scouring and buffing	12- 22	18- 30	12- 16
Blacking and edge polishing for smooth edge	28- 32	24- 28	18- 22
Scouring bottom and top lift	12- 16	12- 14	9- 12
Buffing bottom and top lift	15- 20	12- 18	10- 12
Blacking heel and polishing	10- 14	10- 18	8- 10
Blacking shank and polishing	10- 12	10- 12	.....
Staining half of the bottom with oakaline and brushing	12- 14	10- 12	.....
Setting edge by machine, McKay work	9- 9	9- 9	6- 6
Wheeling by hand	12- 15	10- 12	9- 9
Pasting in insoles	9- 12	9- 12	6- 9
Finishing, rubbing off wax, and last pulling	24- 30	20- 26	18- 22
Pegging up shoes (after cleaning)	16- 18	16- 18	12- 16
Total	477–606	460–589	337–417
	$1.14–$1.44	$1.05–$1.40	$0.82–$1.00

GOODYEAR WORK.

Item of cost.	Cost per pair.	Item of cost.	Cost per pair.
Turn work with leather heel.	*Pfennigs.*	*Turn work with leather heel*—Cont'd.	*Pfennigs.*
Channeling insoles to the heel seat, shank skiving, and folding edges[a]	1½	Skiving shanks and heel edges	1
Pulling over, pasting counters, common work[b]	4½	Heel trimming	½
Lasting by machine	2	Cutting of heel breast	½
Royalty for lasting machine	1	Heel scouring and heel-breast buffing	2½
Turn sewing	1¾	Blacking heels and polishing	2½
Royalty for turn-sewing machine	3	Polishing edges	3
Pulling tacks, trimming, and relasting	2	Buffing bottoms and top lifts	2
Turning and pasting in heel-seat lining	3	Bottom staining and brushing	1½
Pasting leather insoles and skiving	2½	Tacks, thread, wax, needles, power, light, repairing, etc	5½
Putting insoles or shanks, lasting heel seat, etc., finished to the heel	12	Wheeling heel seat	1
Heel attaching by machine	1½	Putting in lining insoles	1
Slugging top lifts	½	Rubbing down wax and relasting	1¾
		Total (13.8 cents)	58

[a] One-half pfennig additional for channeling all round.
[b] Better work, with toe tips, 6 pfennigs; patent leather, 1 pfennig more.

GOODYEAR WORK—Continued.

Item of cost.	Cost per pair.
Turn work with wooden heel.	*Pfennigs.*
Channeling insoles, shank skiving, and folding edges	2
Pulling over, pasting counters, common work[a]	4½
Lasting by machine	2
Royalty for lasting machine	1
Turn sewing	1½
Royalty for turn-sewing machine	3
Pulling tacks, trimming, and relasting	2
Turning and pasting in heel-seat lining	3
Pasting pasteboard insoles and skiving	2½
Putting in insoles or shanks, relasting, fixing lining, and finishing to the heel	12
Fixing heel, last pulling, heel attaching, and relasting	6
Edge trimming	1½
Blacking edges and top lifts and polishing	3
Buffing bottom and top lift	2
Bottom staining and brushing	1½
Rubbing of wax and last pulling	1½
Tacks, thread, wax, needles, power, light, repairing, etc	5½
Total (13 cents)	55
Turn work with Countess heel.	
Channeling soles, splitting heel seats, skiving shanks, and folding edges	2½
Pulling over and pasting counters[b]	6
Lasting by machine	2
Royalty for lasting machine	1
Turn sewing	1
Royalty for turn-sewing machine	3
Pulling tacks, trimming, and relasting	2
Turning, fixing heel seat, lining, and pasting	3
Pasting pasteboard insoles and skiving	2½
Putting in insoles or shank pieces, relasting, fixing linings, etc., finished to the heel	12
Fixing heel, pasting on heel breast, slugging top lift, and trimming	30
Blacking heels and polishing	2½
Heel scouring	1½
Polishing edges and top lift	3
Bottom and top lift buffing	2
Staining bottoms and brushing of	1½
Rubbing down wax and relasting	1½
Putting in lining insole	1
Tacks, thread, wax, needles, power, light, repairing, etc	5½
Total (20.4 cents)	84½
Welt work (men's and women's shoes).	
Channeling insoles	1
Channeling insoles (leather)	1½

Item of cost.	Cost per pair.
Welt work (men's and women's shoes)—Continued.	*Pfennigs.*
Making gem insoles	2½
Assembling last and uppers, tacking on insoles	1½
Pasting counters and tips, tacking on uppers on heel seat	2½
Pulling over with machine	1½
Lasting shanks and drawing up linings	1½
Lasting by consolidated laster	2½
Royalty for pulling-over and lasting machines	3½
Pounding up, trimming gem insoles[c]	3
Pulling tacks and tacking on uppers with small tacks	1
Welt sewing	2½
Royalty for welt sewing	8
Inseam trimming, welt beating, bottom filling, and putting in shank piece	6
Soles-cementing and laying-by machine	2
Sole trimming	2
Shank skiving and channel opening	1½
Fair stitching	2½
Royalty for fair-stitching machine	8
Cementing and closing channels	½
Leveling and rubbing down edge of soles	1½
Nailing and trimming heel seats (loose nailer)	1½
Attaching heels (lightning machine)	1½
Royalty for the complete set of heeling machines	1½
Slugging top lifts (slugging machine)	1
Heel trimming (McKay heel trimmer)	½
Heel breasting (Power heel breaster)	½
Scouring heel breast	½
Heel scouring	2½
Edge and shank trimming	3½
Edge setting	3½
Stitch separating with machine (twice)	2½
Bottom and top lifts, scouring	1½
Blacking heels, polishing heels and shanks, seat wheeling	3½
Buffing bottoms and top lifts	1½
Finishing bottoms	1
Brushing bottoms and polishing	2
Separating bottoms and shanks	½
Bottom wheeling by hand	1
Coloring edges	½
Burning edges	½
Polishing slugged top lifts	½
Rubbing down the wax	1½
Relasting	1
Stamping	½
Putting in heel-seat piece	1
Cleaning shoes, treeing, and packing up (box calf)[d]	3
Total (21.9 cents)	92½

[a] Better work, with counters and toe tips, 6 pfennigs; pasting patent leather, 1 pfennig more.
[b] Patent leather, 1 pfennig more.
[c] Leather insoles, 3½ pfennigs.
[d] Chevreaux, 4 pfennigs.

AUSTRIA-HUNGARY.

PROGRESS IN MANUFACTURE FOR HOME MAKKET.

The dual monarchy is striving hard to manufacture the necessary products for domestic use and so far as possible restrict importations of such articles. To this end trade schools have been established where, among others, the science of shoemaking is taught. The

Austrian workman consequently is often efficient and skillful, and while our shoe export trade to the country is increasing with great rapidity, it behooves the American manufacturer to realize Austrian domestic industrial conditions that he relax no effort from overconfidence.

The industry of shoemaking is one of growing importance in Austria-Hungary, the factories of the dual monarchy numbering 532, situated principally in Austria proper and Bohemia. Only a small proportion of these factories are fully equipped with modern shoemaking machinery, although such equipment is being gradually accomplished. About 60,000 pairs of shoes are daily manufactured, the largest output of any single establishment being that of Turul Schuhfab Temesvar, where the daily production is 2,000 pairs and 500 workmen are employed. The total number of persons employed in the shoe industry throughout the country is estimated at 80,000, while the average output of all factories with modern equipment is about 380 pairs per day each. Of the total daily manufacture, 30,000 pairs are shoes of the cheaper quality, nailed shoes and slippers, 20,000 pairs are pegged shoes of better quality, and 10,000 pairs are welt and turned shoes. A large amount of hand-sewn work is still done, although the retail dealer obtains a higher price for the machine-made than for the hand-sewn product, the former selling at from $4.06 to $6.09 the pair in both men's and women's goods for better grades.

The American shape is the favored form, and patent leather, vici kid, and box calf the principal leathers used in the manufacture of men's footwear. For women's shoes a last of French design is generally employed and a light tan vici kid is much favored for fine goods; also patent kid and box calf. In detail of workmanship the Austrian-made shoe stands high, resembling in finish the fine French product. This is especially true of women's fancy oxfords and slippers. Men's goods are manufactured as nearly as may be along American lines, and a good imitation of the American shoe is usually turned out. Austrian manufacturers, striving to reduce importation from other countries and increase their own export trade, have realized the popularity and merit of the American shoe, and are as a consequence manufacturing accordingly.

IMPORTS OF AMERICAN GOODS—TARIFF RATES.

The importation of boots and shoes from the United States into Austria-Hungary for the fiscal year 1904 was 6,991 pairs, valued at $16,458; 8,880 pairs, at $21,423, in 1905, and 20,277 pairs, at $42,094, in 1906. These figures are conclusive proof of the shoe market which Austria-Hungary affords our manufacturers and will continue to afford if the same be conscientiously followed up.

Attractive exhibits of genuine American footwear are found in the leading cities of Austria and Bohemia. Retail dealers agree in testifying to the popularity of the American shoe which obtains in their several localities, and report ready and increasing sales. The same dealers also maintain that there is a splendid possibility of building up a much larger trade if a shoe of satisfactory wearing qualities could be laid down in Austria to retail at from $3 to $3.50.

The customs duty on boots and shoes entering Austria-Hungary from the United States is per 100 kilos (kilo = 1,000 grams = 2¼ pounds) as follows: When weighing more than 1,200 grams per pair, 70 kronen (krone, 20.3 cents); more than 600 and up to 1,200 grams per pair, 94 kronen; 600 grams or less per pair, 106 kronen. The United States enjoys the conventional rate of tariff on shoes with Austria-Hungary. The Austrian consumption of American leather for the fiscal years 1904, 1905, and 1906 was as follows:

IMPORTS OF LEATHER INTO AUSTRIA-HUNGARY FROM THE UNITED STATES, 1904-1906.

Kind.	1904.	1905.	1906.
Sole	$14,376	$8,060	$12,116
Glazed kid	2,675	10,439	3,095
Patent or enameled	.....	294	100
Splits, buff, and other upper	32,428	58,954	108,280
All other	1,923	2,165	1,815

These figures by no means represent the total amount of American leathers used in Austrian factories, as much is bought indirectly through German and English houses. The hours of labor in the shoe industry are from 7 a. m until 6 p. m., with one hour's interval at noon. The cost of manufacture averages about the same in Austria-Hungary as in Germany, and in factories equipped with modern shoemaking machinery is figured on the same basis.

ITALY.

HIGH REPUTATION FOR AMERICAN SHOES.

In relation to the shoe trade of the United States with Italy it should be stated at the outset that a high reputation obtains here generally for American products. The American shoe exporter should take advantage of this fact and without delay employ energetic methods for the introduction of his goods upon Italian markets. Our competitors are very busy and there is no lack of personal representation on their part. This is, therefore, the present great need for the furtherance of our own trade.

The shoe industry of Italy, though comparatively small at the present time, is rapidly gaining in importance under the awakened

industrial conditions of the country. The factories number about 100, and are situated in the following localities and towns: In northern Italy, at Milan, Turin, Vigevano, Busto Arsizio, Varese, Verona, Vercelli, Alessandria, and Felizzano; in central Italy, at Ravenna and Bologna, and in southern Italy, at Sicilia, Naples, Campobasso, and Catania. These factories are small and in many instances not fully equipped with modern shoemaking machinery, though such equipment is gradually being accomplished. One firm in Turin produces about 1,000 pairs of shoes per day (Goodyear welt, McKay, and army shoes), this being the largest output of any factory in Italy. The average output of all Italian factories is about 400 pairs per day each. The machine-made shoes are the Goodyear and Blake, or McKay sewn. About 350 pairs per day of hand welts are produced in two factories in Naples.

MACHINERY AND MATERIALS—TANNING.

Hand-sewed work is also carried on in connection with machine work to a very great extent in southern Italy, and to a certain degree in the northern section of the country. With the further introduction of modern shoemaking machinery this class of work will gradually lessen throughout the country, as is already the case in the more advanced north. The principal leathers used in manufacture are, for the better grades of shoes, glazed kid, both black and colors, a good quantity of which is imported from the United States; wax calf, box calf, patent leather, some glazed kid, and horsehide from Germany; and also a smaller quantity of various upper leathers from France and Austria. For the cheaper grades the domestic upper leather is used, and nearly all sole leather is of Italian tanning.

Tanning is carried on extensively (raw hides being imported in large quantities, duty free) principally in small tanneries situated in various districts, from which the leather is sold to leather merchants who again sell it to the shoe manufacturers. The small tanneries are, however, gradually disappearing, to be replaced by progressive establishments with modern equipment. Owing to its geographical situation, Italy produces a larger variety of vegetable tannins than can be found in any country in Europe. Italian official statistics give the number of persons employed in the tanning industry as 13,000. One-third of all the raw hides imported come from Central and South America, and a certain amount is furnished by English possessions in Asia, France, and African countries. The duty on tanned leather is $5 per quintal (220.46 pounds). Germany furnishes fully one-half the required amount. Fancy upper leathers are in great demand. Owing to the customs duty Italian tanners are striving to produce as large a quantity of these as possible for the domestic market.

The following table shows the amounts and values of sole and upper leathers imported into Italy from the United States for the fiscal years 1904, 1905, and 1906:

IMPORTS OF LEATHER INTO ITALY FROM THE UNITED STATES, 1904–1906.

Kind.	1904.	1905.	1906.
Sole leather	$16,857	$16,372	$10,131
Upper, all kinds	73,380	68,874	177,066
Total	90,237	85,246	188,197

PRICES AND STYLES.

The retail prices of machine-made shoes vary considerably. The best quality of Goodyear welt (men's shoes) of glacé kid or box calf sells from about 19 to 22 lire per pair ($3.67 to $4.25), the price varying somewhat according to the locality and situation of the retail shop as well as the quality of the shoe. A McKay sewed shoe (men's) sells proportionately for from 15 to 18 lire ($2.90 to $2.47). In hand-sewed work two distinct classes are produced: The superior grade bench-made shoe, which commands a high retail price in the large towns, from 40 to 50 lire ($7.72 to $9.65), and an ordinary cobbler's shoe, retailing at about $1.30. These latter are especially the product of southern Italy, and are usually made from sheepskin, tanned and dressed in imitation of glacé kid, and welted and hand stitched. Of course material and work are of inferior quality, though the general appearance of the finished shoe is not bad.

The characteristic Italian shape is something of a cross between the French and Swiss shapes; not so neat as the French nor so clumsy as the Swiss. In men's shoes especially the American form is being introduced to a very large extent; in fact, I learn that about one-half of the men's shoes manufactured at present throughout Italy are made over the American bulldog-toe last, or a last very similar in shape, and known as the American last. In women's goods a last more after the French fashion is usually employed, and for children's wear sandals are largely manufactured. The latter retail from 50 to 75 cents, the former from $3 to $3.50 for better grades.

The manufacturers of northern Italy turn out a shoe of exceptionally good appearance, all things considered, though at its best the product is greatly inferior to the American manufactured shoe, which the Italian, as well as every other continental manufacturer with whom I came in contact, during the course of my investigations, attempts to imitate. I did not find, however, the imitation purporting to be "American" so generally advertised here as is true in some European countries.

The importation of boots and shoes into Italy from the United States for the year 1904 aggregated 3,022 pairs, valued at $4,797; for 1905, 3,993 pairs, valued at $6,941; and for 1906, 11,838 pairs, valued at $22,597. In the same years the importation of rubbers was 26,973 pairs, valued at $12,508; 67,230 pairs, valued at $35,327; and 77,386 pairs, valued at $40,916, respectively. American rubbers sell in Italy for $1.50 the pair.

I am sure sales of American shoes might be very largely increased if manufacturers would awaken to the opportunity which Italy offers for their unequaled product. The existence of prosperous industrial conditions, not only in the northern but in other sections of Italy, have already shown an attendant effect upon her population.

PRESENCE OF AMERICAN SHOES.

The city of Milan reminds one of an American town in its "push and go-ahead" commercial atmosphere, and as a natural outcome the people demand in their dress articles of good quality and smart appearance. American shoes are sold in many towns throughout Italy, although there is no exclusively American shoe store in the Kingdom. All the important retail shoe stores in Milan and Genoa are established and maintained by Italian shoe manufacturers, and if American goods are handled by these dealers at all it is but natural to expect that sales of the domestic product should always receive more energetic attention than those of a foreign competitor. American shoes are sold in Italy at from $3.30 to $5.30 for men's and $2.60 to $4.85 for women's. Box calf, glazed kid (button and bals), also russets, are desirable, both in men's and women's footwear, and many oxfords, especially for women's wear, are shown. For the latter the very light shades of tan and gray glazed kid are fashionable, and the windows of the best Italian retail stores invariably make a large showing of women's goods of this description. I noted canvas goods but seldom.

The customs duty on shoes is 19.3 cents per pair. Shipments for northern Italy should be sent via Genoa.

COST OF FINDINGS.

Regarding shoe findings and cost of Italian manufacture, all findings (shanks, counters, heels, inner soles, etc.) are made by the shoe manufacturer at the factory. Under the present conditions I do not think the market affords any opportunity in this line for the American exporter. As modern shoemaking machinery and methods are gradually installed a market might be developed. Owing to the old-fashioned methods by which the cost of production is reckoned in this country—on an altogether different basis and in quite a dif-

ferent manner to the one employed in our own country—it has been impossible to secure an intelligible detailed cost of manufacture. However, I ascertained that the average cost of labor for producing a man's shoe (such as retail in the United States for $3 or $3.50), exclusive of the uppers—that is, bottoming, the shoe starting from the lasting—including treeing and packing, amounts to 78 centesimi per pair, about 15 cents.

American goods generally, in so far as such have been introduced to this country, enjoy a very high reputation for quality. Inasmuch as various suggestions toward a further extension of American trade in Italy along certain lines have already been noted, I shall confine myself in closing to a single statement: Personal representation is to-day the present imperative need of American trade extension in Italy.

THE NETHERLANDS.

SMALL PARTICIPATION BY UNITED STATES.

Holland has no large manufacturing interests, is favorably disposed toward American products, and consequently affords markets sufficiently important to invite our attention. The shoe industry of this country, not a large one, is principally contained within the province of Nord Brabant. Here one finds about 25 or 30 factories—machine operating—each factory having an average production of from 1,200 to 1,300 pairs per week. There are probably about three times this number of small establishments, many of which would be considered little more than cobbling shops in America, where handmade shoes are turned out in small quantities.

The Dutch wooden shoe is still largely worn in the small and remote villages, and to a certain extent by the workmen in the larger towns. A machine-manufactured shoe of Dutch origin is sold by retailers at prices varying from $1.60 upward. The product is somewhat crude when compared with an American shoe, lacking in style and finish. The handmade Dutch footwear of high grade, commendable both for its good appearance and careful workmanship, may be bought at varying prices from $2.40. Wooden shoes command from 20 to 30 cents the pair, prices in all instances applying alike to both men's and women's footwear.

German, English, French, and Belgian goods each hold substantial place in Holland's footwear imports. The United Kingdom exported to Holland, during the year 1906, 22,940 dozen pairs of boots and shoes, at a value of $187,136, while the amount of our exports for the fiscal year 1906 was only 8,241 pairs, at a value of $14,680.

An investigation of this market indicates that there is a most encouraging outlook for American-made shoes. The following are

the statistics of our exports of boots and shoes to the Netherlands during the past five fiscal years.

EXPORTS OF BOOTS AND SHOES FROM THE UNITED STATES TO THE NETHERLANDS, 1902–1906.

Year.	Pairs.	Value.
1902	10,511	$15,901
1903	9,237	15,747
1904	7,712	12,549
1905	6,686	11,339
1906	8,241	14,680

According to merchants who carry our goods, the trade might be largely increased if the manufacturers could cooperate more generally with the dealers; slowness in shipping and unwillingness to advance even small amounts for advertising seem causes of general complaint. English and German boots and shoes are sold in stores maintained exclusively and separately for their sale by the manufacturers. We can not hope through native dealers, carrying a stock of domestic and other manufactures as well as American, to compete in this trade with so large a measure of success as the above-mentioned nations.

SUGGESTIONS FOR MANUFACTURERS.

One dealer, conducting three stores in Amsterdam, carries on business in two under the name of "The American Shoe Company." The significant value of the name "American shoe" as a business medium is realized when one ascertains that the stocks carried of German, English, French, and Belgian goods are each larger than that of the American manufacture. In Rotterdam I found a very attractive and thoroughly up-to-date shoe department where American-made shoes are exclusively carried. The firm has also a branch store at The Hague. Although considering the American shoe trade in its infancy throughout Holland, this firm reports very satisfactory returns for the two years during which the American shoe department has been established in their store. The goods are well liked and are found to give good satisfaction as to wearing qualities.

For the information of those who are interested in carrying on a successful Dutch shoe trade the following suggestions may be made: Presuming the manufacturer really desires Holland's market sufficiently to follow up the natural progress of trade, let him cater to the tastes of the people, ship goods promptly, with attention to details of manufacture, give a reasonable time for credit, and be willing to spend a small amount in advertising his goods. These conditions being complied with, the American shoe manufacturer may expect a steady customer and a constantly increasing market in Holland.

I wish to draw attention to the fact that goods shipped to this country must not be packed in cases without advising contents and value, even when sent with no charge, as samples or advertising matter.

BELGIUM.

INVITING MARKET NEGLECTED.

Existing industrial conditions in Belgium are very different from those of the Netherlands. Belgium is preeminently a manufacturing country. The shoe and leather industries are of growing importance and the output of the former, manufactured on American lines and advertised under the name "American." are everywhere noted in the domestic market and form a not unimportant item in her growing export trade. Exports from the United States to Belgium of leather and leather manufactures for the fiscal year 1906 were in detail as follows, comparison being shown with 1902:

EXPORTS OF LEATHER AND ITS MANUFACTURES FROM THE UNITED STATES TO BELGIUM, 1902 AND 1906.

Article.	1902.	1906.	Increase.
Sole leather	$165,094	$316,903	$151,809
Kid, glazed	25,036	50,830	25,894
Splits, buff, grain, and all other upper	504,405	507,060	2,655
All other leather	3,887	9,664	5,777
Boots and shoes	22,260	53,272	31,012
Harness and saddles	293	541	248
All other manufactures	9,040	4,227	a4,813
Total	730,015	942,597	212,582

a Decrease.

The United Kingdom is a strong competitor in the leather market of this country. Importations of leather from the United Kingdom for the year 1906 were $1,104,056. In the boot and shoe market Great Britain again is our strongest competitor, the following table showing Belgium's imports of British footwear for the years 1901 to 1905, inclusive:

IMPORTS OF BOOTS AND SHOES INTO BELGIUM FROM GREAT BRITIAN, 1901–1906.

Year.	Dozen pairs.	Value.	Year.	Dozen pairs.	Value.
1901	4,688	$43,619	1904	3,921	$42,826
1902	4,653	40,080	1905	4,950	66,300
1903	3,143	39,027	1906	6,904	118,618

The total value of boot and shoe imports for the year 1905 was $380,000; exports, $321,000. The import duty is 10 per cent ad valorem on boots and shoes entering Belgium.

REQUIREMENTS OF THE MARKET.

I feel no hesitancy in saying that this country offers a good market for the sale of American foot wear, but must be allowed to make the following qualifications to the statement: Agencies should be established in the principal cities by firms who are anxious to secure the trade. A reasonable amount of money must be expended in advertising. It is certain that American goods are not sufficiently advertised; this is true of practically all articles placed on the foreign market by American manufacturers. The cost of advertising in Belgium is relatively small as compared with some countries; accordingly less reason is afforded for its neglect. Trade conditions should be thoroughly studied. The fulfillment of the desire of the United States to increase her manufactured exports lies largely in the hands of her manufacturers. There must of necessity be a foreign demand for manufactured goods to be met by a supply from some source. The old law of cause and effect obtains ever, and our export trade to this country ought not to lie so largely along the line of raw materials. Well appointed stores should be established, and energetic American representatives speaking the language of the country should, if possible, be placed at the head of such stores.

SALE OF AMERICAN MAKES.

There are many lines of American manufactured articles which for obvious reasons could find no market in Belgium, and there are many others which may be successfully handled here. The American shoe, for instance, is popular in this country, so popular, in fact, that it is imitated by Belgian manufacturers, and the imitations sold throughout the Kingdom and in the Netherlands under terms so misleading as to give the impression that the shoes are of American manufacture. In consequence of this the Belgian dealer is enabled to obtain a price for the shoes from 4 to 5 francs (77 to 97 cents) per pair in advance of what he would be able to do were they advertised as a Belgian product. It is claimed that not more than 10 per cent of the boots and shoes purporting to be American are such.

There are three stores in Antwerp handling American shoes. None of these, however, handle exclusively American-made goods, but all report increasing sales of the American shoe. Practically the same conditions prevail in all the principal towns throughout the Kingdom with the exception of Brussels, where, in April, 1907, an exclusive American shoe store was opened by a well-known Massachusetts shoe manufacturer. In some instances the American shoes are purchased by the Belgian retail dealer through London agencies. I should recommend a personal investigation of the trade by manufacturers desirous of doing a successful business here.

On March 1, 1906, the tax of 20 francs ($3.86) a year levied on commercial travelers offering their goods in Belgium was abolished. At present commercial travelers of every trade can sell their goods and advertise the commodities of their firms without the payment of this tax.

CLIMATIC CONDITIONS.

I find a complaint is made regarding the quality of sole leather used for this trade. Uppers prove of good wearing quality, but resoling in some cases is necessary after a month's wear. The Belgian stone pavements (sidewalks) and the damp climate of the country are conditions which should be borne in mind by the American manufacturers. The characteristic Belgian shoe is long and narrow in style, but the American shape for men finds favor, owing to its comfortable wearing qualities. The leathers desired are vici kid, box calf, willow calf, roan kid, patent calf, and oil grain.

The best quality Belgian-made shoe sells for about $6. The same price would obtain for an American-made shoe of equally good quality. Prices range from $2 up. Women's shoes are best liked made in French style, with high heel, while a light shade of tan kid is very popular for women's and children's wear. Boots are preferred to low cuts, the latter being very little worn.

TANNING AND SHOE INDUSTRIES.

The tanning industry of Belgium is one of considerable importance. Not only do they work the native skins, but they import large quantities annually. Belgium contributes annually to this industry about 800,000 skins, which include ox, horse, buffalo, kid, and sheep skins, and are imported chiefly from Argentine, Uruguay, Brazil, France, Holland, Germany, etc. Australia and South America send in sheepskins tanned as well as fleeces, which are clipped after arrival.

For the past several years chrome has been used for tanning with excellent success. The large hides are tanned with oak bark or the extracts of oak, quebracho, etc. Kid and sheep skins intended for fine work are treated with sumac; those for chamois-leather work are treated with fish oil, while dressed hides are tanned with alum and salt mixed with the yolks of eggs and flour. The materials for fine tanning work are produced in Belgium, such as oak bark and certain extracts. However, most of the materials required are imported. Sole leather is manufactured throughout Belgium, but the leading centers are Stavelot, St. Hubert, Laroche, Namur, Peruwelz, and Soignes. Strap leather is manufactured in Liege, Verviers, Herve, and other places adjoining. Skins for gloves are tanned at various places throughout the Kingdom. About 60 establishments are employed in the dressing and dyeing of skins.

The domestic shoe industry gives employment to about 50,000 workmen, of which number about 4,000 are employed in factories manufacturing a machine-made shoe; these factories number about 55 and are situated principally at Brussels, Verviers, Louvain, Binche, Frameries, Paturages, and Termonde. Hand work is principally carried on in Flanders, at Iseghem and Sotteghem; in the Province of Antwerp, at Lierre; in the Province of Hainaut, at Binche; and in the Province of Liege, at Herve. In fact the handmade shoe is manufactured in every hamlet and village of Belgium by local makers employing one or two hands, and their output is of all sorts—nail soles (also machine made), screwed soles, peg soles, and hand sewed for men, women, and children—the annual production being approximately 2,500,000 pairs.

HOURS OF LABOR.

The hours of labor in Belgium are very long. The laborer commences work at 6 a. m. and ceases work at 7 p. m., with the usual breaks for meals. He is paid, according to the trade in which he is employed, on the average 7 cents to 9 cents per hour for ten hours and for additional two hours 25 per cent increase, making his daily wage from 84 cents to $1.08 for twelve hours. Children begin their life work at the age of 12 years; and as regards hours for child labor, the law states that no child under 16 years of age shall be kept at work for more than twelve hours a day. A Belgian statistician estimates the average earnings of an artisan at about $160 per year, which includes child labor.

SWITZERLAND.

PRODUCTS OF LOCAL FACTORIES.

Switzerland is constantly gaining in industrial importance. Although her shoe factories are small in number, she boasts the home of the largest shoe factory in Europe and a rapidly expanding export trade, both of which facts will be noted later. Our own footwear trade with this country offers good possibilities which have hitherto been unrealized by the American manufacturer.

There are 30 factories in Switzerland turning out machine-made shoes, situated chiefly in the northeastern or German-Swiss cantons. Hand-sewed work is produced in small shops throughout the country generally, and the wooden product is manufactured in the cantons of Glarus and Lugano. Of these latter 40,000 pairs are annually sold in the country. The wooden-shoe industry is carried on during the winter months only, as in summer the peasants, who make the shoes, are engaged with their flocks and herds in the mountain pastures. A shoe fashioned of wood, with leather strap across the instep, retails at 1.25 francs (24 cents); a like product, hobnailed, retails at 1.75 francs (34 cents). Wooden shoes with leather tops and felt linings are also among the output. In Canton Tessin

wooden shoe with military heel is manufactured and largely worn by the native peasantry. This style of shoe sells for 1.75 francs (34 cents), or if so cut that a knot in the wood forms the heel or a portion of the same, thereby giving a more serviceable wearing quality, the price is 2.50 francs (49 cents).

In machine work the annual production is said to reach about 7,500,000 pairs, the average output of the factories being from 300 to 400 pairs per day each. The factory with the largest output in Switzerland is in Schonenburg. In fact this factory is the largest on the continent of Europe, its daily output averaging 9,500 pairs of shoes, and it employs 3,800 persons.

LABOR AND STYLE OF PRODUCT.

The work of Swiss factories is not specialized, as in the United States, and one may find shoes for women, men, and children, also slippers, manufactured under the same roof. These likewise may consist of Goodyear welt, Blake sewed (McKay), peg, and nail products. The Swiss factories are largely equipped with modern American shoemaking machinery, and American leathers are more or less employed in manufacture. In spite of this the Swiss, as compared with the American product, is very inferior in both style and finish, as all labor here is practically unskilled. Women do the work of buffing, scouring, and finishing, as well as stitching and pulling over, and often accomplish far more work than the male workman.

Shoes of all grades are manufactured, the retail prices being from 7.50 to 12.50 francs ($1.45 to $2.41) for the more ordinary kinds, while for the best grade Goodyear welt shoes the retail price is 22.51 francs ($4.34). A laborer's hobnail shoe is sold at from 5 to 10 francs ($0.96 to $1.93). Box calf is a favored leather for better grades, and woolen-lined products for winter wear of this leather, men's and women's, cost from 16 to 20 francs ($3.08 to $3.86). Top boots are sold for 19 francs ($3.67). Wax splits are used in the manufacture of the cheaper grades. Tan or colored leathers are not in favor at present.

The characteristic Swiss shoe is short, with broad ball and stub toe, sharply pointed, nonflexible, uncomfortable, and awkward in appearance. American forms are being introduced, but the present Swiss adaptation of the American form produces rather unsatisfactory results, being fashioned so narrow across the ball that a disproportionate height of instep is necessary; consequently after a little wear, the vamp broadens beyond the sole in an unsightly manner.

AMERICAN SHOE MACHINERY—HOURS OF LABOR.

For one factory here, recently enlarged and refitted with American shoemaking machinery, a line of genuine American lasts and pat-

terns have been ordered from a firm in the United States, and "Americain shoes" (so-called) will in future be manufactured in this factory, together with the characteristic Swiss product. No half sizes are manufactured.

The hours of labor are from ten to twelve, varying in different parts of the country. The factory workman is required during the summer season to begin his labor at 4.30 or 5 a. m. This early hour is demanded in order that the fresh energies of the workers may be obtained by the employer, as nearly all artisans are engaged to a greater or less degree in agriculture for personal benefit. During the winter season work in factories commences at 6 o'clock; fifteen and twenty minute rests are allowed at 9 and 4 o'clock, respectively, when refreshments of beer and bread are taken. From one to one and one-half hours are allowed for dinner.

The principal food of Swiss shoemakers consists of bologna, bread, and cheese, with beer; meat is seldom eaten unless on feast days; soups are served on Sundays.

EXPORTS AND IMPORTS.

The total value of exportation of leathers and shoe goods from Switzerland during the year 1905 was $1,752,960, the United Kingdom taking $504,000 worth; Germany, $277,440; United States, $3,840; France, $460,800; Austria, $24,960; Italy, $54,720, and other countries, $408,000. Thus Switzerland is developing a trade in this line with many of the world's markets. A great deal of satisfaction exists among Swiss manufacturers over the fact that a shoe export trade has been established with Germany, the German manufacturers being the chief competitors in the Swiss domestic shoe trade. Switzerland has already extended her foreign shoe trade to Brazil and other South American countries, furnishing for these markets her best grades of footwear.

Switzerland imported from the United States during the year 1905 leather and its manufactures as follows:

IMPORTS OF LEATHER AND ITS MANUFACTURES INTO SWITZERLAND FROM THE UNITED STATES, 1905.

Article.	Value.	Article.	Value.
Boots and shoes	$25,846	Prepared parts	$5,558
Harness, etc	3,566	Miscellaneous	33,649
Sole leather	508,883		
Other kinds of leather	861,899	Total	1,439,401

[Switzerland, on account of its inland position in Europe, does not receive the bulk of its purchases of American goods direct, but through re-exports of French, German, and Italian ports. Hence the total declared leather goods' exports of the United States to Switzerland for the fiscal year 1906 appeared as only $41,700, against $54,259 in 1905. Mr. Butman states, however, that his statistics referred to were obtained from Swiss sources and were supposed to be officially correct.—B. of M.]

In boots and shoes the statistics show the following values of importations from other countries: Germany, $630,240; France, $100,800; Austria-Hungary, $96,000; United Kingdom, $17,280.

Genuine American-made shoes are on sale in all important Swiss towns, and are constantly increasing in favor. The larger stocks carried by Swiss dealers are of the better grade shoe, selling usually for 22 francs ($4.25). This market affords capacity for a much larger development. If an earnest effort were made by American shoe manufacturers to further introduce and push sales of the same, there is no reason why a splendid increase of trade should not result.

TAXATIONS FOR AMERICAN STORES—COST OF PRODUCTION.

I should judge that of Swiss cities the town of Geneva afforded the best situation for the establishment of an exclusively American shoe store. Certain it is that at least in one of the large tourist centers such a store ought to do a satisfactory business, both with the native population, who see and admire the footwear worn by the visitors, and also with the tourists. Likewise, if the shoe manufacturers of the United States were represented by commercial travelers, introducing the product in all communities, a good business ought to result throughout the country.

It should be borne in mind by the American manufacturer and exporter that custom duties are levied on the gross weight of all importations, which means weight of the article and its packing, and this at the tariff rate charged for the contents of the package. The United States enjoys the most-favored-nation clause for its products entering Switzerland.

COST AND STAFF REQUIRED FOR A DAILY PRODUCTION OF 250 TO 300 SHOES IN SWITZERLAND WITH UPPERS ALL PREPARED.

GOODYEAR WELT.

Class of labor.	Employees.			Cost per pair.	Salary.	
	Men.	Women.	Boys or girls.		Each.	Total.
				Francs.	*Francs.*	*Francs.*
Gumming insoles		1	1	0.30 .25	3.50 2.50	6.00
Lasting with consolidated	2			.04	6.00	12.00
Pulling over by machine	1			.02	6.00	6.00
Assembling for pulling over			2		2.50 3.00	5.50
Pulling out nails, upper trimming, and pounding up, etc			1		4.00	4.00
Sewing on welts	1			.02	5.00	5.00
Inseam trimming	1			.01½	3.50	3.50
Welting beating			1		3.00	3.00
Filling and shank fixing, etc			2		3.00	6.00
Cementing soles and sole laying	1			.01½	4.25	4.25
Nailing heel seats	1			.01½	3.50	3.50
Rough rounding and channeling soles	1			.01½	6.25	4.25
Shank skiving and channel opening	1			.01½	3.50	3.50
Rapid stitching	1			.02	5.00	5.00
Channel laying and sole leveling	1		1	.01½	2.50	4.25 2.50
Stitch separating		1		.01½	3.50	3.50

COST AND STAFF REQUIRED FOR A DAILY PRODUCTION OF 250 TO 300 SHOES IN SWITZERLAND WITH UPPERS ALL PREPARED—Continued.

GOODYEAR WELT—Continued.

Class of labor.	Employees.			Cost per pair.	Salary.	
	Men.	Women.	Boys or girls.		Each.	Total.
				Francs.	*Francs.*	*Francs.*
Heel-seat trimming			1	0.01½	3.50	3.50
Attaching heel and topplece	1			.02	5.00	5.00
Slugging topplece			1	.01¾	4.25	4.25
Heel trimming and breasting	1			.02	5.00	5.00
Heel scouring	1			.01½	4.25	4.25
Heel blacking, setting, beading, and polishing		1		.01¾	4.25	4.25
Edge trimming	1			.02	5.00	5.00
Edge setting and inking	1		1	.02	5.00 2.50	5.00 2.50
Sole buffing		1		.01½	3.50	3.50
Naumkeag buffing		1		.01½	3.50	3.50
Finishing soles, shanks, and topplece		2		.01½	4.25	8.50
Treeing and cleaning, etc	2			.01¾	4.25	8.50
Pulling last and packing			2		3.50	7.00
Total	18	7	13			151.50

BLAKE-SEWN (McKAY) STANDARD SCREW.

Bottom stock cutting, etc	2		2		5.00 3.50	10.00 7.00
Channeling McKay soles and opening channels			1		3.50	3.50
Sole molding with fittings	1				4.50	4.50
Lasting	1			0.02		6.00
Pulling over and attaching soles				.02		6.00
Assembling, etc			2		2.50 3.00	5.50
Upper trimming, pounding up, and drawing lasts			2	.01¾	4.25	8.50
McKay sewed, standard screwed, or pegged	1			.01¾	4.25	4.25
Leveling soles (closing channel, McKay work)	1			.01¾	4.25	4.25
Attaching heel and top lift	1			.02	5.00	5.00
Slugging top lift			1	.01¾	4.25	4.20
Heel trimming and breasting	1			.02	5.00	5.05
Heel scouring	1			.01½	4.25	4.25
Heel blacking, beading, and setting		1		.01¾	4.25	4.25
Edge trimming	1			.02	5.00	5.00
Edge inking and setting	1			.02	5.00	5.00
Sole buffing		1		.00½	3.50	3.50
Naumkeag buffing, McKay sewed		1		.01½	3.50	3.50
Hobnailing, standard screw, or peg			10		3.00	30.00
Finishing, buttons, shanks, and top lifts on McKay's		2		.01¾	4.25	8.50
Staining bottoms and shanks and top lifts on standard screw or peg wood		2		.01½	3.50	7.00
Finishing up, cleaning					3.00	6.00
Dressing, packing, etc		2	2		3.50	7.00
Total	11	9	20			157.75

M 901

CONSULAR REPORTS FROM VARIOUS COUNTRIES.

AUSTRALASIA.

INVITING MARKET FOR AMERICAN SHOES AND SLIPPERS.

Writing from Christchurch, New Zealand, Special Agent Harry R. Burrill directed attention to opportunities presented to American manufacturers of footwear in a report which appeared in the Monthly Consular and Trade Reports for July, 1907. He said:

Throughout Australasia American-made shoes have attained a widespread popularity that is as gratifying as it is warranted by their superior quality, correct shape, neat, natty appearance, and the comfort with which they may be worn. Although, as indicated in a previous report, an inferior shoe, masquerading as the best grade, has been exported to Australia and New Zealand from the United States, the reasons for such transaction are well known to the trade, and the demand has not suffered to any appreciable extent. As a measure of precaution, however, it would be well in the future to have the name of the American maker stamped on as a guaranty of quality, which would make misunderstanding or misrepresentation impossible.

Several manufacturers of the United States have declined to ship second or third grade shoes when requested, on the ground that they could not afford to export an inferior article bearing their name or trade-mark. The wisdom of this refusal has been repeatedly demonstrated, for by maintaining the standard of their output they have retained the confidence of the Australasian consumers. Those manufacturers who shipped lower grade shoes to this market with a distinct understanding that they should be sold as such have suffered, for, according to importers and dealers who are thoroughly in touch with the situation, instances are not infrequent where retail dealers have obtained first-class prices for second-grade goods. An Australasian consumer may be misled once in this way, but it is difficult to again impose on him, and the blame for the whole transaction usually falls on the manufacturer. Among the trade there is no disposition to censure the American manufacturers, but that evidence of confidence will be of small benefit if the demand for these particular makes shows a decline, whatever the cause may be.

MARKET FOR SLIPPERS.

An investigation of the markets of Australasia shows that the manufactures of the United States are not represented in a highly important branch of the trade. In Australia, and more especially in New Zealand, may be found an attractive market for shoes and slip-

pers made of camel's hair, imitation camel's hair, and felt. These goods are imported in large quantities from Austria, Germany, and France, and, according to the Australasian importers, there is no sound reason why the United States should not enter the market. The use of these goods is not by any means limited to the working classes, for their comfort, utility, and comparative low cost appeal to all, whatever may be their financial position.

With a view to placing this opportunity for trade expansion before the manufacturers of the United States, samples of the most popular styles on the Australasian markets, together with descriptions and prices at factory, are forwarded to the Bureau of Manufactures. This assortment, although necessarily incomplete, is sufficiently varied to give our boot and shoe manufacturers a fairly accurate idea of what the market requires in this line of goods, and American ingenuity and enterprise may be depended on to supply as complete a variety of patterns and sizes as are supplied by the continental makers if on investigation the proposition appeals to them. The boot and shoe manufacturers of Australasia have not as yet attempted to make these goods, and it is not regarded as probable that the effort will be made, at least for a considerable length of time. England has tried to compete, but with practically no success. The American manufacturer could therefore enjoy this attractive trade without the handicap of a preferential tariff against him.

PREFERENTIAL RATES AND PRICES.

The Australian preferential trade proposal, which included boots and shoes, is at present a dead letter, because of its conflict with existing treaties, and the New Zealand law gives a preference only to Great Britain and her colonies. Inasmuch as the shoes and slippers under discussion are all imported from the Continent of Europe, they enter these markets under precisely the same conditions as would similar articles manufactured in the United States. It is probable, however, that as a rule the American-made article would have a shade the advantage in freight rates.

The prices shown in the list furnished the Bureau of Manufactures are those charged at the factory, with the trade discounts, which are also indicated. In figuring on the cost of the goods laid down at Australasian ports it would be safe to add 50 per cent, and an additional 20 to 30 per cent will cover their retail price. In the judgment of the importers, dealers, and even the manufacturers of Australasia, this trade opportunity is well worth the careful examination of the manufacturers of the United States; and if it is found that the goods can be made and laid down here at a price that would enable them successfully to compete with those on the market, no time should be lost in making the experiment. It may be asserted with confidence that, quality and price being equal, the Australasian dealers would unhesitatingly declare in favor of the American-made articles as against those of continental make.

LOCAL FACTORIES.

Boot and shoe factories may be found at many of the trade centers of Australasia. They are doing satisfactory work and are building up an excellent business, which is certain to increase through the pro-

tection afforded by the governments of Australia and New Zealand. It is not believed, however, that the expansion in the trade of the colonial-made shoe will result in a proportionate decrease in importation. And this is especially true of the American-made shoes.

The establishment of colonial factories, notwithstanding the possible future effect on exports of boots and shoes from the United States, is of great benefit to another American industry. The colonials are trying to make shoes as near like those manufactured in the United States as is possible, and they believe the best way to accomplish this is to use American machinery in their manufacture. As a consequence colonial factories are to a gratifying extent equipped with the shoe machinery of the United States; and not only this, but everything necessary for properly finishing a pair of shoes is imported from the United States.

Every effort should be made by the American manufacturers to protect and strengthen the boot and shoe trade now so satisfactorily established on the markets of Australasia, and an attack on the monopoly in camel's hair and felt goods now enjoyed by the manufacturers of Continental Europe would, it is believed, be a popular and profitable move in that direction.

BRAZIL.

TRADE IN SHOES AND SHOEMAKING MACHINERY.

(From Monthly Consular and Trade Reports, May, 1907.)

Consul-General G. E. Anderson, of Rio de Janeiro, reports that the boot, shoe, and leather trade of Brazil needs attention from American manufacturers. He reviews the situation thus:

The record of 1906 has not been fully satisfactory to American interests, although there was improvement over other years. The sales growth in American shoes has been steady, while that in American leather has been sporadic. American manufacturers of leather have shown an interest in this field, with the result that they have enjoyed a more satisfactory trade. There has been a great increase in the imports of shoemaking machinery, which measures the development of Brazil's shoemaking industry along modern lines and promises much for American leather if not for American shoes.

Until recently the mass of Brazil's population has used for foot wear the south Europe "tomongas," or several varieties of cheap loose slippers made from a piece of wood, which forms heel, sole, and body, with a top which is little more than a strap of leather, cloth, paper, etc. These slippers are cheap, of little value in cold weather, and indeed would not be accepted anywhere if the people could afford anything else. Until recently it has been impossible to secure better foot wear in Brazil at a price which would bring the goods within the reach of the mass of the people for more than dress occasions. Shoes heretofore have been made in Brazil by the old-time shoemaker by hand, of whatever leather might be had and upon old models. For most of Brazil this is still the case.

BOOT AND SHOE DEVELOPMENTS.

In many instances the small shops have been developed into large factories. There has been some development of the labor-saving idea in these, but the work has been done by hand with indifferent lasts and models. In the meanwhile heavy import duties have shut out foreign goods except for the wealthy, and labor and other troubles have combined to hold back unduly the development of the business. In the past year or two there has been considerable restlessness in the business, and the recurrence of strikes and lockouts among the large number of workmen employed in the shoemaking industries of the country have aided to force a change. In spite of high duties there has been a gradual introduction of American foot wear, and this has led to a change from the long, pointed, thin-soled shoes common to south Europe to the broader and more substantial forms. The result has been a notable change in the business of shoe manufacture and shoe selling. In Sao Paulo the factories have mostly been modernized by American machinery. The change in Rio de Janeiro is also in progress. The entire character of shoe styles now offered the Brazilian public has changed, and the dominance of the American styles is becoming more and more pronounced. There are few places in Brazil where American shoes, especially those for men, are not regarded as the best. There use has been very largely one of price, as the customs and other expenses have kept foreign shoes under disadvantages. The total imports for two years were as follows:

Country.	1904.	1905.	Country.	1904.	1905.
United States	$31,848	$64,213	Other countries	$23,633	$14,262
Austria-Hungary	67,257	55,980			
France	25,661	20,276	Total	197,657	188,031
Great Britain	49,258	33,300			

[The declared exports of boots and shoes to Brazil from the United States during the past two calendar years were as follows: For 1905, 26,024 pairs, valued at $63,836, and for 1906, 36,695 pairs, valued at $96,705.—B. of M.]

An American shoe which retails at home for $3.50 will retail here at present exchange for $7.75, yet it is doubtful if the dealer here makes any greater profit than the dealer in the United States. Foot wear to be suited to large consumption in this market must cost less than American goods cost here at the present time. Doubtless the introduction of American machinery will cheapen the cost of shoe manufacture so much that there will be a far more general use of up-to-date foot wear, and the demand for all sorts of shoes will be immensely increased in Brazil in the course of a short time. This demand is already felt. While there has been comparatively slight increase in population of a sort to represent much consuming power, there has been a vast increase in the output of Brazilian shoe factories, which is reflected to a greater or less extent in the increased imports of leathers suitable for shoemaking, and at the same time there has been an increase in the output of Brazilian leathers.

LEATHER IMPORTS.

The Brazilian customs returns give the imports of hides and skins, tanned or otherwise prepared, for two years as follows:

Country.	Kilos.		Value.	
	1904.	1905.	1904.	1905.
United States	63,170	61,490	$126,143	$135,614
Germany	149,357	160,206	577,961	681,781
France	287,598	352,680	763,434	939,115
Great Britain	89,426	95,894	109,455	142,622
Other countries	70,020	61,528	52,353	83,413
Total	659,571	731,298	1,629,346	1,982,545

[No sole leather was exported from the United States to Brazil during the past two calendar years. The exports of upper and other leather, including glazed kid, patent or enameled, splits, buff, grain, etc., amounted in 1904 to $98,957, in 1905 to $133.846, and in 1906 to $166,432.—B. of M.]

That American leather men have an especially good opportunity to introduce their leathers now, however, is unquestionably the case. Other memoranda on this subject have been submitted from this consulate-general before. It is only necessary to say, perhaps, that the demand here is for leathers suitable for a tropical climate—leathers which will resist moisture and yet be light in weight, light in colors, and running to the flashy in appearance; the proportion of kid leather of the several varieties and grades is high. The French kid-leather manufacturers have an advantage in the market at present.

A DEMAND FOR SHOES OF A SPECIAL KIND.

The fact that the demand for American-style shoes and for the American goods themselves is increasing and revolutionizing the shoe trade of Brazil does not mean that American manufacturers need to give no special attention to manufacturing for the Brazilian market. There is need of this special attention, both in the matter of quality and weight and in the matter of style itself. That Brazilian taste and Brazilian demand have turned toward American models suggests the advisability of American manufacturers meeting both halfway. In the first place, the weight of shoe wear in a tropical country is to be considered. Brazilians run to kid leathers and light-weight material generally. Shoes with cloth tops are popular. In short, hot-weather goods are wanted. Heavy-weight goods, even of the most approved style and the best of quality, can hardly be popular here, no matter what the price. The same principle applies in the matter of leathers. In style Brazilian taste would probably take best of all to models not so radically foreign as to forget everything Brazilian. The Brazilian factories which employ American machinery and American lasts do not run to heavy toes or widely extended soles.

Most American shoes now sold in Brazil are distributed through local firms as agents of the American manufacturers, generally under a more or less closely-drawn agreement of exclusive territory within

certain limits. Credit terms are generally more liberal than those given dealers in the United States. The pushing of the trade is interfered with considerably by the high duty on advertising material. Newspapers and magazines probably offer the best advertising medium in Brazil at the present time.

CANADA.

TARIFF RATES SERIOUSLY AFFECT AMERICAN SHOE IMPORTS.

(From Monthly Consular and Trade Reports, June, 1907.)

Consul J. E. Jones writes that the sale of American shoes, especially the finer grades, which have long enjoyed an almost exclusive market in Winnipeg and the surrounding country, is seriously affected by the new Canadian tariff. He writes:

Gradually, through unfavorable tariff legislation, the market is being destroyed, and unless remedial legislation is enacted the American-made shoe will disappear from the stores. There will always be a demand among the well to do for the high-grade American dress shoe, but this will become more and more limited until it ceases altogether. Already the cheaper grades of American shoes have been forced out of the market. The Canadian manufacturer has been a successful competitor in this line, offering a value impossible of competition. This has been largely the result of the 25 per cent duty. Under conditions which obtain in some foreign countries it might be possible for American manufacturers to meet the competition. In other words, if a manufacturer were permitted to sell his goods cheaper in Winnipeg than he does in America the situation might be met. But the Canadian customs requires an invoice to show the selling price of similar goods in America and levies the tariff accordingly.

There is an enormous demand for cheap shoes in Winnipeg. Many thousands of immigrants pass through the city on their way west. The city is the doorway through which the new settlers must all pass. Immigrants are not given to a nice discrimination in the selection of shoes. They want substantial, well-made shoes, without regard to style. The Canadian manufacturers seem to have made a special study of this demand and are supplying it. An immigrant does not spend over $3 for a pair of shoes, and it is next to impossible to get an American shoe to sell at that price.

THE NEW TARIFF A FACTOR.

The last revision of the Canadian tariff has raised the duty on high-grade shoes to 30 per cent ad valorem, and this has had a marked effect upon the market. This duty applies to samples brought into the country. To meet this exigency American manufacturers, especially those who carry large lines, find it more profitable to pay the expenses of a buyer to some point near the boundary where the samples are displayed in American territory. The largest wholesale shoe dealer in Winnipeg, who is also one of the largest in Canada, had this to say upon the subject of American shoes:

The American high-grade shoe in our market is doomed. Through the high tariff and freight rates of the past and the relative high wholesale prices we are compelled to pay, there remained but a small margin for the dealer. Five per cent additional

tariff solves the problem. We can not pay it. All of my agents have been instructed not to push American goods. Either the American manufacturers will have to cut their price, give us a better shoe, or retire from the market. The Canadian government is trying to encourage home industry. Heretofore the Canadian manufacturer has not produced a satisfactory high-grade shoe, but when they see the market and appreciate the demand a better shoe will be produced.

Some years ago an attempt was made to operate a shoe manufactory in Winnipeg, but it was not attended by any degree of success. These attempts, however, were not vigorous, and the scale upon which they were operated quite limited.

ECUADOR.

PROFITABLE BUSINESS ESTABLISHED.

(From Monthly Consular and Trade Reports, July, 1907.)

Consul-General H. R. Dietrich, of Guayaquil, sends the following information concerning the popularity of American shoes in Ecuador:

American shoes are generally better liked here than those imported from other countries, on account of their style, workmanship, and durability. Merchants handling them say they are better sellers than those brought from Europe. An undeniable proof of their growing popularity and well-merited reputation is the yearly increase in sales.

Spain leads in this market in one specialty, however, a child's shoe made of rather cheap material, but which presents a good appearance and can be sold at a low price. The reason for supplying cheap shoes for children is that the masses are poor and must economize on every hand. American manufacturers should be able to furnish as good or even a better shoe for children for as little money as other countries supply. This matter should be given consideration by American manufacturers who desire to extend their trade in Ecuador, particularly for the reason that when a specialty is put on the market and meets a well-established demand it tends to carry with it trade in other lines.

POPULAR REQUIREMENTS.

The demand for cheap goods does not apply to men's and women's shoes. On the contrary, the average customer wants a neat, attractive, well-shaped shoe, with a very high vamp which is also serviceable. One merchant informed me that some time ago he purchased a large quantity of men's low-priced shoes in the United States which, on account of their attractive appearance, found a ready sale at first, but as soon as it was discovered that a few wet days rendered the shoe almost worthless the remainder of the lot, about 2,000 pairs, were left on his hands to be sold at a loss. These particular shoes are of a class that are jobbed in the United States at from 85 cents to $1. While there was no complaint made as to the style and shape, the shoe was made of a cheap grade of porous leather, generally called buff stock, pasteboard inner sole, and composition bottom. This combination soon falls to pieces, and the purchaser learns that the shoe is not made of the same class of material that his home cobbler uses and for which he charges considerably more. From this it would appear to be more profitable for manufacturers and agents to encourage merchants here to purchase a good grade of shoes for adults, as poorer qualities, while they may pay a *larger profit* temporarily, will sooner or later destroy

the customer's confidence and his trade will be lost. The best American-made shoes handled here cost at home from $30 to $36 per dozen.

The importations of shoes, including a small amount of sandals, and other rubber footwear into Ecuador for the past four years aggregated $117,079, the amounts from various countries being as follows:

Country.	1903.	1904.	1905.	1906.
United States	$3,388	$23,111	$6,543	$18,468
Spain	1,971	4,243	3,237	9,403
Great Britain	1,182	6,212	2,545	8,199
Germany	2,787	2,164	4,144	2,355
France	2,728	2,192	5,215	5,849
All others	253	125	390	375
Total	12,309	38,047	22,074	44,649

JAPAN.

IMITATION LEATHER WILL FIND MANY USES IN TRADE.

(From Monthly Consular and Trade Reports, May, 1907.)

Consul-General H. B. Miller, of Yokohama, reports that the promoters of the Japan Imitation Leather Company, of Tokyo, recently bought the business of the Tokyo Imitation Leather Manufacturing Company, and have fixed the capital of the new undertaking at $250,000, the business advantages being as follows:

The imitation leather turned out by the company can be sold, quality for quality, at a quarter of the price of genuine imported leather, and it is claimed for appearance and durability it is in no wise inferior to the genuine article. It is anticipated that a larger market for the articles will be found in America and Asia. This is one line of manufacture that seems well adapted to the country in every way, and will, no doubt, have a successful future. So many cheap, light, and attractive articles can be made in Japan out of this imitation leather, both for home use and for export, that the demand for the product will be very heavy. Cheapness, neatness, and artistic appearances are prime essentials for a great variety of things used in the Orient, and imitation leather will furnish a material out of which many articles of common use will be made.

MEXICO.

AMERICAN MAKES IN DEMAND.

Consul-General Philip C. Hanna, of Monterey, made the following report in the Consular and Trade Reports for May, 1907:

There are no shoe factories in this part of Mexico. Common Mexican shoes are made in many small shops and worn by the poorer people, while nearly all shoes worn by the upper-class Mexicans come from the United States or Spain. Those of American manufacture are popular among all classes and generally worn by all persons who can afford them. Those of Spanish make usually have sharp-pointed toes, high heels, and often fancy decorations, but they are not as popular here as American shoes, and their sale is by no means as large.

For dress occasions and everyday wear high-quality shoes of American manufacture are in demand, and it is believed their sale will steadily increase. Low patent leathers are exceedingly popular; white, brown, cream, and shades are in demand for summer wear.

The Mexican people, as a rule, have smaller feet than Americans, and small sizes with high insteps are generally better suited for this market. There is a large mail-order business in American shoes between Monterey and American cities, the duty on the same being settled at the post-office on delivery. Several stores in Monterey handle none but American shoes.

TURKEY.

SOURCES AND CLASSES OF SUPPLY—SUBSIDIARY GOODS.

(From Monthly Consular and Trade Reports, May, 1907.)

Consul-General Edward H. Ozmun, of Constantinople, furnishes the following translation of extracts from the French Chamber of Commerce Bulletin published in the Ottoman capital:

Sole leather is imported into Turkey in rolls. One roll consists of half the hide of an ox cut in the center lengthwise. The weight of the current article averages 15 to 17 pounds. The estimated importation at Constantinople is 40,000 rolls. Of this total 45 per cent is imported from France, 30 per cent from Belgium, 20 per cent from Hungary, and 5 per cent from Italy.

Previous to the introduction of box calf in this market the sale of glazed calf reached 3,500 dozen per annum. This has now fallen to about 800 dozen, of which 300 dozen are for transit trade. This article comes almost entirely from France. The sale is principally in heavy skins, the weights varying between 40 and 66 pounds per dozen. The demand is mostly for second and third qualities. The sales of box calf amount to about 3,500 dozen per annum. It is stated that America formerly supplied the whole of this quality, but that the Germans engaged American foremen in their tanneries who have worked with such success that they have ousted the American product, the importation of which is said to have entirely ceased.

The sales of colored calf, which amounted to 500 dozen, have now been partly replaced by the colored grain calf and colored glazed kid and are now reduced to about 200 dozen, coming almost entirely from France.

The sales of colored grain calf are limited to about 100 dozen a year, coming mostly from Germany and only a small quantity from America. For colored footwear the glazed colored kid is being used more and more, being lighter, which in this country is a much-appreciated quality.

The natives have a fondness for patent-leather shoes. Turkish officials use it entirely for a light overshoe, which replaces the rubber overshoe; this overshoe is slipped off when entering a mosque or an official department, or when visiting. The sales amount to about 3,500 dozen, nine-tenths of which comes from Germany, principally from Worms and Weinheim.

At one time all the shoes worn with rubbers or patent-leather overshoes were made of dull kid. The sales were 7,000 dozen a year. Since the introduction of glazed kid these sales are reduced to about 2,500 dozen. Marseille has the monopoly of the market in this article. These kids are heavily charged with grease and weigh from 7 to 44 pounds per dozen. The lightest weights, 7 to 9 pounds, are used for ladies' shoes, being cheaper than the glazed kid.

KIDS AND COWHIDES.

Sales of shagreen (rough kid) amount to 200 dozen a year, imported entirely from Germany. Dressed kid, called chamois, replaces the glazed kid when the price of the shoe will not permit the use of the latter. The sales amount to about 2,500 dozen a year. The sales of plain colored kid amount to about 500 dozen a year, of which one-fourth are imported from Marseille, the remainder from Germany.

In regard to varnished cowhides, the local custom-house appraisers, accustomed to the small animals of this country, of which the largest do not exceed 6½ hundredweight in weight, named them camel hides, and the name remains in the local market to this day; 1,200 hides are imported yearly, of which one-half come from

France and the remainder from Germany. The French hides, however, are somewhat smaller and generally preferred.

The sales of tawed calf, or mégissés, which at one time reached 2,000 dozen yearly, have dropped to almost nil, having been replaced by chrome-tanned kid. The sales of glazed kid, chrome tanned, has increased steadily in late years, to the detriment of tawed calf (mégissés), plain kid, and even glazed calf. America dominates the market in black glazed kid in virtue of its magnificent assortment. Certain American houses pride themselves on being able to offer 160 different kinds of glazed kid for quality, strength, and size. Three-quarters of the black glazed kid is imported from America, the remainder almost entirely from France, and very little from Germany. The colored glazed kid is imported mostly from France, a little from Germany, and even less from the United States. The sizes vary from 3 to 8 square feet. The total sales reach about 5,000 dozen a year.

The sales of varnished sheepskin are about 1,000 dozen yearly. It is used locally for a cheap shoe, and especially for children's shoes, and is imported entirely from France. Of white tawed sheepskin, or mégis, the sales are about 100 dozen, and it is used for babies' shoes. Spotted hairy calf is a French specialty and is used for making slippers. The total imports do not exceed 300 dozen. Split hides are imported exclusively from America, via Liverpool, in packets of 62 to 75 pounds, containing 14, 20, 25, or 30 split hides. The lighter the hides are in weight the higher the price, which varies from $1.06 to $1.28 per pound. The sales amount to 20 to 25 tons per annum. Quite a large quantity of this, however, is intended for southern Bulgaria. About 400 varnished split hides are imported from Germany and used for carriage mud guards. The sizes are from 3 to 4 meters square.

LEATHER FOR HARNESS—SOLE LEATHER CUTTINGS.

The black leather for harness is mostly furnished by local tanneries; of the remainder, one-quarter is imported from England and three-quarters from Germany.

During the last eight or ten years large quantities of cuttings of sole leather have been imported, coming from the large shoe factories in Europe. They are found suitable in this country for building heels. Shoes being made by hand, the shoemaker does piecework, and time is a minor consideration. The annual importation of these cuttings amounts to above 100 tons and the price varies from 2 to 8 cents a kilogram (4½ to 17½ cents per pound). Germany furnishes the greater quantity; England but a small quantity. In reference to the local tannery the products have much improved on account of more careful work and the use of modern methods. The tannery prepares the hides of oxen, cows, and buffaloes of local slaughter and imports raw hides. It also tans skins, and while these will not bear comparison with the imported article their cheaper cost enables them to be used with profit in the making of cheap shoes.

The consumption of buffalo hides tanned red and white, camel hides, and light skins of 7 to 9 pounds per roll, coming from Smyrna, Samos, Chios, Mitylene, and Aivali, is considerable. It is estimated to attain three times the quantity imported from abroad. These products are used in the manufacture of cheap foot wear. The raw hides used in the tanneries in the archipelago are imported from China, Indo-China, India, and Egypt, via Havre, Antwerp, and Hamburg.

SIDE LINES AND SHOEMAKERS' REQUISITES.

Sales of elastic tissues diminished, owing to the fashion for elastic sides having been superseded; imports from France, Italy, Austria, and Switzerland. Of linen and cotton linings 10,000 pieces of 20 yards each are imported, coming almost entirely from England. Of shoemakers' thread $19,000 worth is imported, principally from Italy and a small quantity from Belgium and England. Straps are imported from Germany; they are made with the shoemaker's name inwoven. Lasts are made locally, while a few are imported from Austria. Eyelets and buttons come from France. Laces are imported from Germany. Felt is imported from Germany for certain shoes and slippers. Cork soles are little used. Iron heels are used for the laboring classes and the army and are imported from Birmingham and a small quantity from Austria.

The dealers in skins in Constantinople are considered by the French Chamber of Commerce to be very reliable. [A list of these is furnished by the consul-general to the Bureau of Manufactures.] It is nevertheless to be recommended in opening relations to require satisfactory references. All letters should be marked "Via London, open *mail.*" A New York house has a branch in Constantinople.

ASIATIC TURKEY.

PROSPECTS FOR AMERICAN FOOT WEAR IN THE LEVANT.

(Consul E. L. Harris, of Smyrna, Monthly Consular and Trade Reports, June, 1907.)

Patent-leather shoes, especially those made on American lasts, are considered indispensable to the well-dressed man in the Levant, but with this solitary exception, the long and narrow shoe, well pointed at the toe, known locally as French shape, practically holds this market. While a considerable quantity of ready-made shoes, chiefly those for ladies' wear, are imported from France and Austria, the bulk of the trade is supplied by local shoemakers, who work extremely cheap and well. With the exception of part of the sewing being done by machine, the whole is made by hand. The better class of the Turkish population wear a shoe made of very thin leather, having a closely fitting overshoe of slightly thicker leather, which is worn when out of doors. In all native houses the floors are either covered with matting or thick Turkish carpets, either of which show the least trace of mud or dust on them, making it imperative that great care should be taken to keep clean boots, hence the large number of bootblacks found in every Levatine city. Shoes made on the American pattern do not, as a rule, find favor, and although they may become so at some later date, American shoe manufacturers must, if they intend to sell through catalogues, make shoes on the French pattern. If the American patterns are to be introduced it would be a good plan to open stores in the chief cities of the Levant where nothing but American shoes would be sold.

TRADE IN RUBBER OVERSHOES.

Germany at present has the largest trade in rubber overshoes with this province, and her annual exports amount to about 1,000 cases, each containing 100 pairs. America's share approximates 700 cases, which contain either 2 or 4 dozen pairs each. The imports from Russia, which now are perhaps not more than 200 cases per annum, have dwindled very considerably from what they were three years ago, owing to the disturbed state of her manufacturing districts. While the American overshoe is preferred by the better classes on account of its lightness and shape, it has the defect of not being nearly as durable as the German article, and is moreover 15 per cent higher in price. The German manufacturers grant three to six months' credit, while the American exporter demands cash, a stipulation not much appreciated by the Levantine merchants. The bulk of the worn-out rubbers are shipped to the United States for the sake of the rubber. The quantity last year was valued at $817. Repairs to overshoes are done very skillfully by local experts, who will repair a shoe which seemingly is of no use.

FAVORABLE OPPORTUNITY.

MARKET READY FOR AMERICAN MAKES.

(From Monthly Consular and Trade Reports, July, 1907.)

After a visit to the leading shoe stores of Smyrna, Consul Harris was prompted to take up again the matter of boots and shoes, and bring the following particulars to the attention of American manufacturers who may wish to do business there in that line:

It would be wise for American manufacturers of boots and shoes to lose no time in taking the necessary steps toward introducing their wares into Asiatic Turkey, as this field is ripe for the adoption of American styles. Any delay in seizing the present opportunity, which consists in a particular craze for American shapes, may mean later on, when a change in fashion takes place, increased difficulties in securing a foothold.

Such is now the demand for the American round-toe shaped boots and shoes that there is hardly a single shoemaker in the city who is not actively engaged in turning out more or less perfect imitations of the American article. Several people in Smyrna send to America for their shoes, notwithstanding the expense and trouble which that involves.

The best imitations of American shoes are now selling between $5 and $6 a pair, while the ordinary handmade shoe sells at an average price of $4. These prices should allow a good margin for the sale of American shoes, even taking in consideration the exceptionally good work turned out by the local makers.

Manufacturers who would decide to make an effort toward introducing their article in this territory should take up the matter in a thorough manner, as no success can be hoped for otherwise. A man should be sent out to study local conditions and to appoint a reliable and pushing representative well versed in the shoe trade. On the principal street a store should be fitted out with a complete stock of boots and shoes in all sizes and styles, and advertisements would have to be inserted in the local papers.

The ideal way of making a start would be for several manufacturers of such articles as could be sold in the same store to combine and inaugurate a sort of limited department store where nothing but American products should be sold, and in which business would be conducted in the usual American way. Such an undertaking would meet with unquestionable success.

WALES.

AMERICAN SHOES POPULAR.

(Consul D. W. Williams, Monthly Consular and Trade Reports, March, 1907.)

American shoe dealers may as well understand first as last that it is a suicidal policy to send shoes to this country with soles that can not stand the climate. The American shoe is praised here for its smartness in shape and design, for the good quality of the uppers, for that easy feeling on the foot; but the soles, except of house shoes, usually fail to give satisfaction. The British manufacturer is profiting greatly at present by making a shoe after the American model and mounting it on a good sole. It would be only common sense for Americans to send competent men here to study the kind of sole needed, the kind that experience has proven satisfactory, and annex it to the American shoe. Then the American could easily capture the bulk of the trade of the country in all grades above $2.50. Americans would be foolish to try to compete in the cheap grades, for the markets are flooded.

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REPORT ON

ENGLAND'S COTTON INDUSTRY

WITH BRIEF NOTES ON OTHER INDUSTRIES

By

WILLIAM WHITTAM, Jr.

Special Agent of the Department of Commerce and Labor

DECEMBER 9, 1907

Referred to the Committee on Commerce and ordered to be printed

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1907

DEPARTMENT OF COMMERCE AND LABOR,
OFFICE OF THE SECRETARY,
Washington, December 5, 1907.

SIR: I have the honor to transmit herewith report of Special Agent William Whittan, jr., on England's cotton industry, with brief notes on other industries, in compliance with the act making appropriations for the legislative, executive, and judicial expenses of the Government for the fiscal year ended June 30, 1907, approved June 22, 1906, which directs that results of investigations by special agents to inquire into trade conditions abroad shall be communicated to Congress.

Respectfully,

OSCAR S. STRAUS,
Secretary.

The PRESIDENT OF THE SENATE.

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LETTER OF SUBMITTAL.

WASHINGTON, *July 30, 1907.*

SIR: I submit a report on trade conditions in Great Britain, the greater part of which deals with British cotton manufacturing methods and the foreign trade of that country in cotton manufactures.

In compliance with instructions from the Department, considerable time was spent in the county of Lancashire, England, in which are located nearly one-half of the cotton-spinning spindles of the world, and the output of whose mills approximates 75 per cent of the cotton goods supplied the world's markets.

Seeing that the cotton goods exports of the United States have only once or twice approached 10 per cent of the British total, and this despite the fact that in this country is produced the bulk of the raw material consumed throughout the world by this great industry, I deem it clear that many of the results of English perfected methods of manufacture and distribution must be of interest and value to the American manufacturer and merchant. The results of my investigations cover so wide a field and deal with such a number of phases of the subject that I can not clearly indicate them in this letter without unduly extending its length.

It is, however, certain that a yet more close and lengthy investigation of this, the world's center of the cotton-manufacturing industry, will result in the collection of valuable information which will appreciably and permanently promote American export growth in cotton fabrications of all classes.

Respectfully,

WILLIAM WHITTAM, Jr.,
Special Agent of the Department of Commerce and Labor.

To the SECRETARY OF COMMERCE AND LABOR,
Washington.

ENGLAND'S COTTON INDUSTRY.

A territory measuring 121,000 square miles, which is less than the area of New Mexico, and supporting 43,660,000 people, is our greatest competitor for the cotton-goods markets of the nonmanufacturing world. Such is the United Kingdom of Great Britain and Ireland. The foreign trade of the Kingdom for 1905 and 1906 shows the following remarkable aggregate:

	1905.	1906.
Imports	$2,749,679,426	$2,958,289,385
Exports	1,983,568,498	2,241,888,600

Of the enormous value of exports in 1905, $1,310,000,000 was made up of manufactures. The American cotton trade hardly comprehends the fact that cotton manufactures form more than one-third of this vast outgo of manufactured articles. In truth the most important trade in the world, as well as the largest, is that of cotton and cotton products, and there is not a doubt that if the makers and distributers of cotton goods in this country had even a fairly accurate conception of the large extent of this foreign trade they would take the necessary steps to secure a fair share of it.

EXPANDING AMERICAN EXPORT TRADE.

The mill man or merchant whose horizon is contracted will doubtless think that the present period of great demand and satisfactory prosperity in the American home trade is an unpropitious time to bother about trade abroad, seeing that we can not for the present easily supply our home requirements. Taking a view of the barometric record of our industry covering a decade or so, the close observer can arrive at no other conclusion than that such an attitude is shortsighted. We rank low as exporters of cotton goods when compared with five or six of our competitors and leaders; therefore we can not claim to have much knowledge of the general conditions of the business outside of our own country. In any search we make for success in this stimulation of export growth we can only be guided by the lamp of experience, and where we have none of our own we must perforce borrow our neighbor's light. It is cer-

tain that the existing and hitherto unheard of prosperity which the cotton trade is indisputably enjoying will not last forever, and when the next period of depression arrives we shall be anxious for substantial foreign connections. It is but common prudence that we should take every possible measure to forestall adversity.

Americans have an undesirable reputation abroad as "dumpers" of surplus stocks whenever their warehouses are overflowing. This is unfortunately a handicap when permanent connections are sought. No amount of academic discussion will sell our goods in new markets, nor enable us to compete successfully with rivals. We must first determine the degree of our competitive efficiency, and if we fall short in any particular look for a remedy to correct the fault. Examining the latest statistics available, those for the calendar year 1906 uncover a comparison not a little disquieting.

COMPARISON OF BRITISH AND AMERICAN EXPORTS.

Great Britain exports every year over 6,000,000,000 yards of cotton cloth, or more than our American mills produce. Nor does a comparison of values afford us any greater cause for self-congratulation. During the calendar year 1906 Great Britain exported cotton manufactures to the value of $484,000,000. The United States during the same period sent out only $43,000,000 worth. In that year our trade decreased over $13,000,000, while English trade increased $37,000,000. We have often been accused of "carrying all our eggs in one basket," and it is an accusation for which the evidence is conclusive. Our cloth exports to the Chinese Empire, with the relation they bear to the total exports, for the last three years were: In 1904, $14,000,000, or 54 per cent; 1905, $34,000,000, or 70 per cent; 1906, $17,000,000, or 51 per cent.

As a matter of fact, our Chinese trade is fluctuating. In 1905 that country took from us more dollars' worth of cloth than we sent to the whole world during 1906. The statement has been made that the United States dominates the Chinese cotton-goods market; and while this is true so far as sheetings are concerned, it does not hold for all kinds of cottons, as the British export record shows her outgo to China with the percentage of increase over that of the United States, for the same three years to have been: In 1904, $37,000,000, or 167 per cent; 1905, $50,000,000, or 47 per cent; 1906, $45,000,000, or 164 per cent. Clearly, but for an unusually brisk home demand, the falling off in our China trade during 1906 would have had a disastrous effect.

BRITISH INDIA'S LARGE CONSUMPTION.

American export trade in cottons can only be developed in countries which have not erected a preferential tariff barrier against us, and so far we seem to have made no effort to enter the greatest of all neutral

markets—British India. That country takes 40 per cent of England's enormous cotton-cloth exports, notwithstanding the fact that India operates 6,000,000 spindles of her own. England sends to India over 2,500,000,000 yards of cloth a year, as against less than 1,000,000,000 yards to all other oriental countries combined. Many statesmen and leaders of public opinion and thought in England predict that sooner or later a commercial empire union will be established between the United Kingdom and her colonies and dependencies, and with it a tariff barrier against the products of the United States and those of every other foreign cotton manufacturing country. Therefore this is the time for United States manufacturers to establish a foreign market for their goods which will not be easily shaken from its foundation.

IMPORTS OF LATIN AMERICA.

Coming nearer home, and comparing the British sales to the Republics to the south of us on this hemisphere and the islands of the West Indies with our shipments to those countries, it is found that 1906 witnessed a greater trade in cotton goods between those countries and Great Britain than the total American shipments to the entire world. The official records show that cotton cloth shipped by England to the countries south of the United States in 1906 amounted to 755,000,000 yards, while American shipments during this period to the same countries were 136,000,000 yards. The total United States exports of cotton goods in 1906 were 511,000,000 yards.

Looking further, Mexico, connected with the States by adequate and excellent railroad and steamship facilities, took 25,500,000 yards from England during 1906, and only 2,500,000 yards from the United States. Cuba, which has given us a substantial tariff preference, bought from this country in 1906, only 16,000,000 yards, taking during the same period nearly 59,000,000 yards from Great Britain.

BRITISH AND AMERICAN EXPORT TRADE IN YARNS.

While cloth forms the bulk of exports to foreign countries, cotton yarns are by no means an unimportant item. During 1906 England sold abroad over $56,000,000 worth of cotton yarns, as against sales by the United States of rather less than $400,000. In no year have American yarn sales in foreign markets reached 1 per cent of the British total.

One more item and a repetition of totals will complete a comparative record which should be kept before the cotton manufacturers and merchants of this country until the record is reversed. British exports of miscellaneous manufactures of cotton in 1906 amounted to more in value by nearly one-half than the total American exports of

cloth, yarn, and all other manufactures. The totals for the calendar year 1906 should at least awaken interest in the mercantile systems which enable a country, though remote from the raw material, not only to hold such a trade, but to steadily increase the outgo. The following statement shows the comparative United States and British exports of cotton manufactures in 1906:

Articles.	United States.		England.	
	Yards.	Value.	Yards.	Value.
Cotton cloth	511,000,000	$32,282,000	6,261,000,000	£66,415,000
Cotton yarn		394,000		7,522,000
Miscellaneous manufactures		10,284,000		0,129,000
Total		42,960,000		4 4,066,000

Thus the country producing the bulk of the world's raw material, and with more than a century's experience in manufacturing, is selling in foreign countries less than 10 per cent of the amount shipped by a competitor situated nearly 4,000 miles from the cotton fields.

FACTORY SYSTEMS AND MANAGEMENT.

An examination may now be made into some of the more important systems in manufacturing and factory management which differ from the practices usually followed in the American cotton trade. Large spinning mills are the rule, the trade in England having arrived at the conclusion that about 100,000 spindles, and rather over than under this number, is the most economical unit. This size of mill brings down the per pound cost of investment, supervision, and nonproductive labor charges. This is more practicable in England than in the United States, owing to the finer average numbers spun. Out of 64 new Lancashire spinning mills only 8 are arranged to spin anything below 20s, and all but 4 of the 64 put most of their product into 40s and upward. This fineness of yarns spun accounts for the relatively small number of bales of cotton used by England's mills considering the large number of spindles operated. England uses between 30 and 35 pounds of cotton per spindle per year, and the annual consumption per spindle has shown a slow but steady decline for several years, indicating that the products of her mills are gradually assuming a finer and lighter character. Continental Europe and Great Britain combined use 70 pounds per spindle per annum.

Contrary to the English trend, and due to the somewhat rapid increase in Southern States spindleage, which usually makes low numbers, the increase in the annual cotton consumption in the United States per spindle has been as follows: In 1880, 70.43 pounds; 1890, 78.79 pounds; 1900, 95.33 pounds; 1907, 104 pounds (estimated).

Lancashire mills are built from a combination of steel, iron, brick, and concrete, known as "fireproof construction," the machinery being arranged across the mill, and not lengthwise as is customary in American practice. This permits a better distribution of light throughout the rooms, and consequently tends to reduce the amount of bad work. As compared with our "slow-burning" type of mill with wood floors, beams, and posts, and all the changes in lines and levels that follow the warping and shrinking of the timbers and flooring of mills so constructed, the English type of building is more rigid. Almost complete absence of vibration of floors is secured, and therefore better work is possible. Also, owing to greater strength of the steel beams, wider spans are permissible and safe, thus dispensing with many columns and permitting such as are used to be arranged where they are least in the way of the workers. In other words, each factory building can be and is designed to fit the machinery, and this tends to economy in production.

PURCHASE AND SALE OF COTTON.

Lancashire enjoys many advantages in the purchase of raw material, one of which is the greater range of cottons available to her spinners. Where American mills have their selection practically confined to home growths and Egyptian, our trans-Atlantic competitors have, in addition, East Indian, Brazilian, Peruvian, and a considerable number of other varieties to choose from. This frequently enables them to cheapen by mixing or to spin yarns having peculiar characteristics for special purposes. Liverpool, 30 miles from Manchester, is the home of the raw cotton exchange and is England's chief cotton market.

Members of the Liverpool Cotton Association buy or sell for their clients nearly every bale landed in Liverpool. These men are known to the trade as buying or selling brokers. The former confine their business to buying for spinners, while the latter restrict their operations to disposing of cotton for the importer, through a buying broker. Some firms act in both capacities in the same transaction, thus drawing a double brokerage; but they are not looked upon with favor. Both brokers are paid a commission of one-half per cent, the owner and the purchaser each paying the firm acting for him. Cotton is sold to the mills for cash in ten days, less one-half per cent discount, any difference which can not be amicably arranged between the disputants being referred to an arbitration committee appointed by the association. By this method litigation, with its attendant heavy charges, is avoided. For years the question of moisture in cotton was a bone of contention with the trade. It is now ruled that if any bale contains over 10 per cent of moisture the cotton is unmerchantable and may be returned to the seller.

At the end of last year a new cotton exchange building was opened in Liverpool, costing about $1,750,000. The structure covers more than an acre. The floor of the exchange is 140 feet long by 165 feet wide. The offices and sales rooms of many cotton firms are in the building, as well as the quarters of the Cotton Clearing House and Cotton Bank, which are now combined. On the periodic settling days for "futures" obligations are met by credit vouchers, and all balances are discharged through the Cotton Bank. Standard samples of the grades of every variety of cotton regularly coming to Liverpool are kept on hand by the association, and in the offices of each broker the spinner can have corresponding types immediately placed before him.

COTTON MIXING AND EXPERT SELECTION.

It is not uncommon in Lancashire mills for different cottons which approach each other nearly in length of staple to be mixed together when an advantage in price can be gained by so doing or where color, strength, or oozy characteristics are required in yarns for special uses. Considering all the differences in marked features of the available cottons, as well as in their selling prices, it is obvious that the Lancashire spinner has an advantage over his American competitor in the production of the many sorts of fabrics demanded by foreign consumers.

The expertness, discriminating skill, and care with which the English spinner selects his cotton is in striking contrast to the carelessness with which many American cotton spinners make their purchases. Except when buying Sea Island, Peeler, and other staple cottons, the merchant in the Southern States, as well as many spinners, when bargaining for Uplands or Gulf cottons, merely opens a handful taken from the bale and classes it by its color and cleanliness, taking into account also any evident damage done in ginning. Before similar cotton reaches the English spinner it has undergone a much more careful examination and revaluation on the basis of its real spinning worth. Buyers abroad spend considerable time over each sample they examine. Knowing the denomination or variety he needs, the foreign spinner next takes into account, when arriving at its value to him, the price asked and the effects of ginning on the physical condition of the lot (this should teach American planters that carefully ginned staple will bring better prices), such faults as cut, nepped, curled, or twisted fibers being looked for. Discoloration, the quantities of leaf, broken seed, fast or unginned seed, sand, and excessive moisture are also considered. Besides these, the length of staple of the shortest sorts is examined, and the comparative strength, silkiness, and elasticity of the fibers are taken into consideration, not forgetting the bearing that the proportion of short, immature, imper-

fectly developed, and unripe fibers will have on the amount of waste made in the mill, as well as the effect the presence of an abnormal proportion of such fibers will have on the strength, elasticity, and general weaving value of the resultant yarns. The exchange issues daily and weekly reports containing quotations, stocks, movements, and a mass of other commercial information of value to the trade. These are printed after business is closed in the afternoon and reach nearly every spinner in the country early next morning.

SPECIALIZATION AND ITS ADVANTAGES.

In Lancashire the cotton industry is highly specialized. Generally the operations of spinning and weaving are conducted in separate establishments. The manager of a weaving mill frequently knows little, if anything, of a spinning mill, and vice versa. Consequently he develops into a more competent man in his specific vocation than the one who is burdened with the superintendence of all the numerous and intricate processes involved in the converting of raw cotton into finished cloth.

There is another advantage which goes with this separation of weaving and spinning operations. The huge spinning mills are as a rule laid out to make counts within a limited range, and they seldom change. This practice makes possible a greater production per spindle of a better quality and at a lower cost per pound than is obtainable in mills spinning a wide range of numbers, necessitating frequent changes. Many other economies follow this plan.

On the other hand, the weaver buying his yarn in the cop has the widest scope. He can quickly and inexpensively change from one make or style of cloth to another, and at any time take advantage of any favorable aspect of the market. Of great importance also is the concentration of the trade within a small area. Everything that can possibly be needed in every process of manufacturing is at hand and can be obtained quickly. Repairs are done by outside machine shops, and thus many of the "odd hands," so costly yet necessary in most American mills remote from populous centers, are there almost unknown.

Broadly speaking, the spinning and weaving, in addition to being conducted in separate factories, are also in the main carried on in different districts, South Lancashire being a spinning area, while weaving is most common in North and East Lancashire. There is still further subdivision, even within the boundaries enumerated, Bolton and Manchester being the centers for fine yarns, such as we use for spool cotton, lace, mercerizing, and kindred purposes, while Oldham and outlying districts mostly spin yarns for weaving. Also, in the weaving trade, Preston and Chorley districts weave light, medium, and heavy weight fancy goods, Colne and Nelson colored

fabrics, while Blackburn and neighborhood make shirtings and dhooties, heavily sized, of which British India takes such enormous quantities.

IMPORTANCE OF "ROOM AND POWER" BUILDINGS.

Weaving sheds, known as "room and power" establishments, are numerous and increasing, especially in East Lancashire districts. These consist of the ordinary shed type of weaving room built by companies as an investment and not to operate. They contain either looms, shafting, and motive power, or motive power and shafting only, and are rented in sections to practical weavers on one of three plans, to wit:

First. The tenant rents room and power only, installing his own looms. For this he will pay from $9.15 to $10.80 per loom per year.

Second. Renting room and loom only will cost from $8.40 to $10.80 a year per loom.

Third. Renting room, loom, and power involves a rental ranging between $13.20 and $16.80 per loom a year.

The higher price in each case is charged by the more modern establishments.

There are many instances in England of men who were loom fixers starting on one of the foregoing plans, wife and children operating the first few looms rented, who now own and operate large establishments of their own. This should be an excellent plan to follow in the United States in manufacturing districts where cheap electrical power is available. It would undoubtedly lead in the long run to that form of specialization which has contributed so much toward Lancashire's present foreign trade supremacy.

LABOR COST, WAGES, OPERATIVES, AND PRODUCTION.

Figures show the progress in British manufacturing methods and economy. In 1882 it was computed that an average spinning mill employed 5.71 workers to each 1,000 spindles. In 1893 this had dropped to 4.86 persons, while in the modern mills to-day 2.5 persons per 1,000 spindles is considered a maximum. The legal working hours have been reduced in the same period from fifty-six and one-half to fifty-five and one-half weekly. Production per spindle per year rose from 31.5 pounds in 1882 to 32.4 pounds in 1893, reaching 32.8 pounds in 1905, and it is clear that this gain in yield per spindle is really greater than the figures show, because the average counts produced have increased in fineness during the period. The average weekly wages per operative in 1882 were $4.08, in 1893 the rate was $4.56, and at this writing the rate is calculated to be $4.68.

Taking the same data for weaving mills, the hours of labor being

the same, the average weekly wages rose from $3.60 in 1882 to $3.96 in 1893, and again to $4.32 in 1905. In this connection it must be said that Lancashire's weaving mills employ a considerable number of children who work in the mill half a day assisting four-loom weavers and attend school the other half day. And, further, there are many more young persons running only two or three looms than are found in American weave rooms. This has a tendency to make the apparent average earnings lower than the circumstances warrant.

In spinning the labor cost per pound has gradually diminished while the earnings of the workers have increased, and there has been a gradual rise in weaving labor cost. In 1882 weaving labor cost averaged 4.6 cents per pound and spinning 3.8 cents. For 1893 weaving was 5.18 cents and spinning 3.2 cents a pound, while during 1905 weaving had risen to 5.26 cents and spinning had dropped to 3 cents. The increase in weaving cost is due, it is said, in part to a general advance in wages, but principally to the rapidly growing trade in fancy weaves and finer and more expensive cloths. Production per loom per year in pounds grew from 1,806 in 1882 to 1,866 in 1893, reaching 1,895 in 1905.

OFFICIAL PIECEWORK PRICE LISTS—WEAVING.

Mule spinners, weavers, and those employed in the processes preparatory to weaving have long been paid by piecework. The lists have been standardized and agreed upon by representatives delegated from the employers' and operatives' associations. Expressed concisely, the standard upon which the weaving prices, or "uniform list" as it is termed, are based is an ordinarily made loom, 45 inches in the reed space, measured from the filling fork grate on one side to the backboard on the other, weaving cloth as follows:

Width: 39, 40, or 41 inches.
Reed (sley): 60 reed, 2 ends in one dent, or 60 ends per inch.
Picks: 15 picks per quarter inch, as ascertained by arithmetical calculation, with 1½ per cent added for contraction.
Length of piece: 100 yards of 36 inches measured on the counter. Any length of lap other than 36 inches to be paid in proportion.
Warp: 28s or any finer numbers.
Filling: 31s to 100s, both inclusive.
Price: 60 cents per piece, or 4 cents per pick.

MULE-SPINNING PRICES.

Mule spinners in different districts work under dissimilar lists, based upon unlike principles. Each one, however, has for its object the fixing of a moderately elastic minimum weekly wage depending upon the number of spindles attended by the "minder" and the

amount of work he has to perform. Until within recent years the spindles in the Oldham district were engaged almost altogether in the production of yarns below 50s, Bolton and Manchester making the higher, medium, and fine counts. In the Preston district a wider range of numbers was being spun when the list was compiled, therefore this list is taken for an example. The standard for filling is that 85½ cents shall be paid for 100 pounds of 32s spun on mules with 640 spindles in each mule, and for warp 92½ cents for 100 pounds of 30s on mules with 540 spindles in each mule. One cent is added for every 20 spindles from 600 downward and one-half cent is deducted from 600 to 900 spindles on filling mules. For warp 1 cent is added for every 20 spindles below 500 and above 500 one-half cent is deducted up to 800 spindles. The standard turns per inch for filling is 3.25 times the square root of the counts and 3.75 for warp, and it is provided that all extra turns are to be paid for at the rate of two-thirds the proportion. When filling is spun on warp mules, 5 per cent is allowed, except when the speed of the spindle is the same as the speed of filling spindles which may be operating in the same mill on the same counts.

NEW CARD-ROOM OPERATIVES LIST.

After a decade or more of dissatisfaction and friction and three years of negotiation between employers' and operatives' associations a universal standard list has this year (1907) been adopted for card and picker room operatives. It defines standard lengths of frames and hanks, regulates the helpers' and doffers' wages for standard lengths, and deals also with increased and reduced spindleage, joiner tenters, and double-geared frames. The following figures will be of interest:

Standard lengths: Slubber, 84 spindles; intermediate, 124 spindles; rover, 164 spindles.

Counts: Coarse, below 3½ hank roving; medium, 3½ to 8 hank roving, both inclusive; fine, above 8 hank roving. Below 3½ to 3 hank roving, 5 per cent to be added to medium counts wages. Below 3 hank roving, 10 per cent to be added to medium counts wages. Above 8 hank roving, 5 per cent to be deducted from medium counts wages.

These additions and reduction apply to both big and little tenters. The complete list is too lengthy to be incorporated in this report. The foregoing, giving as it does English standard lengths of frames, defining coarse, medium, and heavy hank rovings, and detailing the percentages of additions and deductions for different hanks, will give the American spinner a conception of the differences in wage value encountered by the English spinner.

GROWTH OF COLNE AND NELSON.

Colne, with 25,000 population, and Nelson are two Lancashire towns which have grown amazingly in the last two decades. Forty years ago Nelson, or Marsden, as it was then named, was little more than a crossroads settlement. Now it is a municipality of no mean importance, with a population of 38,000, and one of the most aggressively industrial towns in the textile manufacturing districts. Nelson has no parallel in either Lancashire or Yorkshire in so far as its almost magical progress goes. Instead of a handful of people eking out an uncertain living, there has been built up an industrial community working under conditions which continue to command the admiration of every student of industrial evolution in the United Kingdom. The increase, indeed its very existence, is due to the growth of weaving sheds and "loom and power" establishments. Here is the center of England's colored-goods industry, and this branch of the trade also has a recognized standard list for weaving colored goods, differing from the list for gray and fancy fabrics provided for in the "uniform list," so called.

COLORED GOODS LIST.

The standard upon which the price for plain and striped goods is based is as follows:

Cloth: 28, 29, or 30 inches in width.
Reed: 52 to 64, both inclusive, or 26 to 32 dents per inch, 2 ends in a dent.
Length: 74 yards of warp, 36 inches to the yard.
Filling: 16s or any finer counts.
Price: 3 cents per pick.

The standard upon which the price for checks is based is 70 yards of warp, 4 cents per pick. In all other particulars the same as the standard for plain and striped goods.

REEDS.

Reeds: 52 to 65, inclusive, or 26 to 32 dents per inch, 2 ends in a dent being taken as the standard.

Above 64 to 70, add 2 per cent; above 70, an additional 1 per cent for each extra dent or 2 ends per inch.

Below 52 down to and including 46, deduct 2 per cent, and below 46, 3 per cent, beyond which no further deduction shall be made.

CLOTH.

The standard, being 28, 29, or 30 inches, is reckoned equal.

For each inch below 28, three-fourths per cent is to be deducted down to 20 inches, beyond which no further deduction shall be made.

Above 30 inches up to and including 36, 1 per cent per inch is to be added. Above 36 to 40, 1½ per cent, and above 40, 2½ per cent per inch.

The construction of cotton goods in England is always given in warp ends and picks per quarter inch. Therefore the price of 4 cents per pick given in the uniform list means that as the standard cloth has 15 picks per quarter inch, the price for weaving 100 yards is 15 times 4, or 60 cents. Similarly, in the standard list for colored goods, the price being 3 cents per pick for stripes and 4 cents per pick for checks, if a piece had 20 picks to the quarter inch, the price for weaving 74 yards of striped cloth, that length being the standard in this case, would be 60 cents, and 80 cents for 70 yards of checks or plaids. Pieces are sometimes woven and measured by lengths other than 36 inches, common odd lengths being 36½ inches to the "lap" and 36.9 inches or the trade "long stick." Again, 35-inch units are sometimes ordered. This explains the term "lap" in the list, and it should be further explained that whenever the actual 36-inch yard is deviated from proportionate additions or reductions are made in the weaving price. Practically every possible variation involving more or less work is provided for in these elaborate schedules, and thus many otherwise unavoidable disputes between employer and employee are prevented.

SPOOLING AND WARPING PRICES.

Spooling.—As Burnley is the print-cloth manufacturing center of England, the prices paid there for spooling and warping furnish an excellent base from which the American manufacturer can calculate his relative labor cost for this sort of work. The Burnley lists for spooling 60 pounds of warp yarn are as follows:

Twist.	Cents.	Twist.	Cents.
16s to 18s	30	40s to 42s	46
20s to 22s	33½	44s to 48s	49
24s to 26s	35½	50s to 52s	52
28s to 30s	37½	54s to 56s	55
32s to 34s	40	60s to 62s	58
36s to 38s	43		

Intermediate counts not named above are in proportion. The spoolers' wages rise and fall along with weavers' wages.

Warping.—For warping 400 ends, 17,500 yards, 5 wraps, the payment is as follows:

For creeling, 8 cents per beam and 8 cents for each wrap, irrespective of counts of warp.

For every 10 ends or fraction thereof, 1 cent up or down, but no deduction below 370 ends, thus: For 400 ends, 5 wraps, 17,500 yards, the price will be 48 cents per beam, including creeling; for 441 to 450 ends, the price will be 53 cents per beam, including creeling; for 379 ends and below, the price will be 45 cents per beam, including creeling. The operative will be required to turn the beam backward to find broken ends.

The warpers' wages to rise and fall along with weavers' wages.

Seeing that the element of labor forms such a large part of the total cost of cotton manufactures, the standard prices here given and those given in previous reports will go a long way toward assisting American manufacturers to determine whether their piecework labor costs per pound or yard are higher or lower than those paid by their chief competitor in foreign markets. It can not be gainsaid that many of our mills making gray goods which come within the range of exports in greatest demand have a very considerable labor-cost advantage over their trans-Atlantic competitors. This lead is due to the extensive use of the automatic loom, and the advantage ought to be made to tell as strongly as possible before like labor-saving and cost-reducing devices come into as common use abroad as they now are in the United States.

TWIST AND SPEEDS.

There are other practices in Lancashire mills which differ materially from established American methods. In the carding departments they do not aim at so high an output from each machine as the American spinner generally does, contending that slower speeds and greater care are more than compensated for by savings in waste, a larger spinning production, and improved quality from cheaper cotton. In the spinning, spindle speeds are, if anything, slightly higher in the United States, and the number of turns per inch put in the yarn less in England than in the United States. Take two leading authorities, whose tables are generally followed as standard practice, and consider 36s ring-frame warp yarn (a good medium count) as given below:

	British.	American.		British.	American.
Spindle speed	9,500	10,200	Revolutions of front roll	132	114
Turns per inch	24.00	28.17	Pounds per 60 hours	1.26	1.08

The foregoing shows an advantage of nearly 15 per cent in production in favor of English mills.

Another claim made by English manufacturers in favor of softer twisted warp yarn is that while the breaking strength is not so great as that of American-spun yarns, it is sufficient for their purpose, notwithstanding they run looms not a little faster than our looms are operated. They further maintain that the harder twisted yarn gives a cloth of bare and boardy appearance and makes it so harsh to the feel that their customers would strongly object to goods so made, adding that American spinners sacrifice production to unnecessary strength. Very careful attention is given in many English weaving rooms to the accurate timing and setting of the several motions of the loom to reduce the strain on the warp and to impart the best "cover" or "clothy" feel to the fabrics.

AMERICAN IMPORTS OF ENGLISH-SPUN YARNS.

Many conflicting statements have been made by British cotton-yarn exporters and their American representatives to account for the continued importation into the United States of English mercerized yarns in medium and fine numbers. Some say that it is due to the present extensive home demand for the products of our domestic mills, but the general belief seems to be that, price for price, the foreign product is a more evenly spun, stronger, and more elastic yarn, carrying a better finish. The English mercerizers of fine counts generally " prepare " their skeins on the " preparing " machine described in a previous report, an illustration of which is in the reference files of the Bureau of Manufactures.

It would be wise for American spinners, twisters, and mercerizers to see that the undoubted and long-prevailing preference in America for foreign-spun mercerized, curtain, and lace yarns of the higher numbers is overcome by meeting the quality of the imported yarns in every characteristic which is responsible for their priority. The yarns are sold by the maker direct to shippers who have an established trade abroad, the latter receiving 2½ per cent discount, but payment must be made in fourteen days to secure this rebate. Other profits earned by the shipper come from the enhanced prices at which he resells the yarn. Not infrequently the orders of the export houses are placed through a yarn agent in Manchester, who is paid a commission of one-half per cent if he merely acts as a broker, disclosing his customer's identity, without being responsible for the payment of the account. On the other hand, should the agent have recognized financial standing and guarantee the account he is paid a commission of 1½ per cent.

THE TWINER AS AN ECONOMICAL TWISTER.

That "a mule cop is like a good soldier, always ready to go anywhere," is a Lancashire saying, born perhaps of the necessity of shipping yarns from spinner to weaver. The same cause is responsible for the development of the "twiner." Two-ply yarns for weaving are often twisted in England on a "twiner," a machine built on the principle of the self-acting mule, but so modified that it is a doubling instead of a spinning machine. Its advantages are that it twists direct from the cop or ring frame bobbin, thus doing away with the operation of spooling. The doubled yarn is built into a large cop which can be shipped anywhere, and thus dispenses in many instances with reeling and rewinding. It is obvious, then, that much expense is saved by this process, and the cost of such fabrics as will admit of the use of twiner yarn is therefore materially reduced. Not only is this so, but the actual operation of doubling by this process is so much less costly

that twiner yarns of 20s, 2-ply, are usually sold, quality for quality, at 1 cent a pound less than ring-frame twisted skeins. Ply yarns doubled on the twiner go in considerable volume to India, China, Japan, Holland, Turkey, and Egypt.

CONDITIONING YARNS AN IMPORTANT PROCESS.

There are many usages which have become firmly fixed in British and European spinning and manufacturing methods which are as yet quite neglected by the American trade, one of which is of leading importance. All cotton yarns spun in England are "conditioned." So firmly is this process fixed in the trade that if a purchaser of yarns insists for any reason on their delivery immediately after they are spun he is charged 5 per cent extra for the material "hot off the spindle," as it is locally known in Lancashire. "Conditioning" is a very apt term for the process, although when first instituted, some forty or fifty years ago, the only intention of the spinner was to deceive his customer and defraud him through the weight of the added water. As matters stand in present practice cumulative experience has demonstrated that yarns properly so treated improve materially in strength, sometimes as much as 10 per cent. Elasticity, a most important attribute in subsequent manipulation, is also increased. The tendency of the yarn to kink and curl in after handling is almost entirely done away with, and the appearance of the yarn is decidedly helped. Granting all these gains in value—and they are beyond question—it follows that to the purchaser "conditioned" stuff is a superior article to that unconditioned. Nor can it be denied that filling so treated weaves with less stoppage of the loom from breakages; hence less waste is made, a greater loom production obtained, and a cloth produced with a better feel and more desirable merchantable appearance.

So much for the buyer of the "conditioned" yarn. The spinner or maker gains the weight of water added, as well as a better reputation as a producer of a high-class product. Raw cotton in a normally dry condition contains an important percentage of moisture, the "water of hydration," which is just as much a part of the fiber as the carbon and other elements entering into its chemical composition. The spinner pays for this natural moisture when he purchases the raw cotton, but a considerable percentage of it is driven off by the heat of the workrooms while the material is being carded and spun into yarn, figuring in the waste account as "invisible loss" unless afterwards replaced in the conditioning basement.

PERCENTAGE OF NATURAL MOISTURE LOST.

I have frequently taken 100 pounds of raw cotton, 10 pounds from each of 10 bales which had been stored, sometimes for months, in a dry warehouse inside the main mill building, and spread it out

loose on the floor of the card room for twenty-four hours. After reweighing the lots they would show losses from 3 to 4½ per cent. If more proof is needed than that already adduced that "conditioning" does improve the weaving, spooling, and warping qualities of the material, it is found in the fact that foreign weaving firms who spin their own yarns almost without exception "condition" them before they enter any other process after leaving the spinning room. Indeed, many American spinning and weaving mills have found it absolutely necessary to do something to make their filling weave even fairly well. Most of them have resorted to "steaming" the cops and bobbins. This is a quick but otherwise objectionable process, destroying, as it does, the waxy covering of the fibers, not permitting the moisture to penetrate the thread thoroughly, and not infrequently developing stains in the cloth woven from filling so treated.

AMOUNT OF MOISTURE PERMISSIBLE.

As to the percentage of gain in weight from moisture now considered permissible the opinions of spinners and weavers vary as between one class and another, and like differences of opinion also exist between individual weavers and spinners. As near as could be learned, ignoring extremists on both sides, from 5 to 7 per cent represents the general view. Taking the average as 6 per cent—and this is a reasonable figure—American spinners will quickly be struck with the gain that their British competitors make in the "conditioning" process. In a 20,000-spindle mill making 20s, 2-ply, worth say 25 cents a pound, this 6 per cent conditioning on a production of 2¼ pounds per spindle represents an annual gain of $33,750. A practical spinner or weaver would at once conclude that the practice described would be open to serious abuse. This is so, but the presence of any percentage of moisture above that generally accepted as being honest to both spinner and user and serviceable to the material is readily detected, effective punishment being at the same time administered to the wrongdoer. To illustrate: One mill built but a few years ago was inspected, which, in spite of the prevailing unusual trade prosperity, has never paid a dividend. Inquiry on the exchange in Manchester disclosed the fact that, in the beginning at least, this concern had earned a reputation for unheard-of heavy loss in weight after its yarns reached the purchaser, due solely to overconditioning. In spite of all their later efforts to keep within established limits, the unenviable reputation had not been lived down long enough to enable them to attain the position they should have held from the beginning.

If no more than 6 per cent is added this amount will be retained, as it belongs to the fiber and was present when the spinner bought his cotton. It is not possible to arrive at any other conclusion than

that foreign buyers have for a generation or more bought yarns so treated, and if we are to compete in a close market we can not afford to give our competitors 6 per cent start, already handicapped as we are by their present hold on the trade and our own exclusion therefrom.

DIFFERENCES IN TYPES OF LOOMS.

Two striking differences in loom construction as compared with the ordinary American type of machine are common. In English mills, except for weaving heavy cloth, the "overpick" loom, with a loose reed, is in general use. It is contended by the Lancashire weaver that he can run his looms at decidedly greater speeds, adjust the pick to a greater nicety, and better avoid costly "smashes" from trapped shuttles than would be possible with the underpick and fast-reed style of loom, which is in general use in the United States.

ADVANTAGE IN WEAVING NARROW GOODS AS "SPLITS."

The weaving of "splits" has given our British competitors a decided advantage when selling narrow fabrics in neutral foreign markets. "Splits" are cloths woven with one or more practically perfect selvages in addition to the two outside ones, and capable, when taken from the loom, of being split into two perfect pieces by cutting between the middle selvages, which are made by the attachment of a very simple special motion, or they may be woven with "doup harness." There is considerable economy in the practice, and as it is common in England and almost nonexistent in the United States, it deserves the serious attention of such of our manufacturers as desire to extend their export connections in the face of the rapidly growing competitive power of Great Britain. To demonstrate the economy of this method of weaving, a fabric 26½ inches wide, 150 yards, 64 by 64, warp 36s, filling 38s, when woven in a narrow loom, would cost two-thirds of a cent per yard more than if woven as "split" 53 inches wide, a margin equivalent to 10 per cent saving on the total cost of the piece.

NECESSITY OF MANUFACTURING STANDARD FABRICS.

The American cotton trade has yet much to learn and many more varieties of goods to manufacture before our exports can attain a high rank in the comparative scale of competitive manufacturing countries. Broadly speaking, American mills make fabrics suitable for but one great oriental market, and even in China we do little outside of two or three sorts. Whenever anything happens to materially check demand in the Celestial Empire certain sections of our

cotton manufacturing industry suffer correspondingly. Some time has elapsed since the Boxer uprising, yet there are few whose interests were involved who have forgotten the commercial disturbance it caused. Long experience has made it plain that any reasonable degree of stability in exterior trade can only be maintained when such goods are manufactured as sell readily and are standard in many countries. Trade dullness in one country will then usually be compensated for by activity in others using the same class of goods. Details of the many kinds of standard fabrics which are used from China to Peru can not be here given, only sized goods and dhooties and a few fancy weaves being described. Full particulars regarding all important sorts have been given in earlier reports.

SIZED GOODS AND DHOOTIES.

Medium and heavy sized gray cloths are of especial interest. It is estimated that nearly 500,000 Lancashire looms, or two-thirds of the total, are engaged in the production of cloth carrying over 40 per cent of size in the warp. Indeed, gray goods form 37 per cent of Britain's total exports of piece goods. This class of goods is important to the managers of American cotton mills; first, because it shows the greatest field for trade expansion and one as yet practically untouched and certainly unworked by the textile concerns of the United States; and, second, because more than half the enormous over seas takings can be profitably made by them and shipped direct from the loom to the foreign purchaser. At the present time the United States produces nothing that will meet the requirements of the user of sized goods. Neither in "feel" nor appearance do any of the regular products of American mills approach those goods of competitors which have an established reputation of long standing. Many American firms export grays or browns, but despite their higher intrinsic worth, due to their comparative freedom from adulteration, they sell reasonably near the same prices as British medium-sized cloths; yet, as will be obvious to every manufacturer, the added weighting material in the foreign commodity materially reduces its cost to produce; and, so long as the purchaser not only is satisfied but prefers the weighted fabric on account of its fullness and feel, American manufacturers can not hope to grapple with their foreign rivals with any satisfactory measure of success unless they turn their attention to similar manufactures.

STANDARD INDIA SHIRTING AND DHOOTIES.

To illustrate the saving, a standard 8¼-pound India shirting, 39 inches wide, 64 by 60, and 37½ yards long, the warp being sized 100 per cent, is taken, and it is found that the cost is reduced 1 cent a yard by the weighting, and this is no mean consideration in India.

While such weighted goods as sheetings, T cloths, domestics, Mexicans, madapollams, Wigans, and drills are standard fabrics, they are shipped to China, Aden, Turkey, India, Japan, Oceania, South America, and the Levant. On the other hand, dhooties go only to the East Indies, West Africa, and near-by territories. Dhooties comprise an important percentage of England's immense trade in cotton goods with India. How considerable a proportion this is may be gathered from the importation of cotton goods of British origin by the province of Bombay. During the six months ended June, 1905, a total of 6,528,851 pieces were recorded, 1,874,401 of which, or slightly over 28 per cent, being dhooties made up of 1,412,757 pieces classed as gray and 461,644 pieces white or bleached.

The white dhooties are woven from gray yarns, the colored borders and headings being composed of dyed yarns which will stand bleaching. It may be pointed out that this great trade is absolutely untouched by American manufacturers. During 1906 Bombay imported only 22 per cent of the gray goods taken by British India from England. This shows the enormous trade in this kind of cloth. Taking proportion as the only method available to get at the total, approximately 13,000,000 pieces is estimated as the East Indian imports of dhooties for the year. Before leaving this subject attention is directed to the somewhat amazing fact that India, with a population of less than 290,000,000, imported in the fiscal year 1906 over $141,000,000 worth of cotton cloths and yarns, taking the first place among oriental consumers of cottons, with China and her 400,000,000 people rather a bad second. This suggests that not only ought we to assiduously cultivate the market of East India, but if American-made cottons were exploited in China as vigorously as the British products have been pushed in India the size of the trade which could be developed in the Celestial Empire would be almost beyond belief.

INDIA'S IMPORTS NOT ALL CONSUMED AT HOME.

If the importations of India are examined from a standpoint of per capita consumption the official statistics must be modified to meet the trading with contiguous countries which have no seaboard of their own. For instance, the transfrontier trade between India and Afghanistan during 1906 showed exports from India amounting to 10,500,000 rupees, and transfrontier exports to Nepal valued at 15,500,000 rupees (rupee, 32 cents). To these must be added the comparatively small value of commerce of like character between India and Bhutan. As the item of greatest importance in these transactions is cotton manufactures, it is obvious that the takings of British India are not all consumed in that country. At the same

cotton manufacturing industry suffer correspondingly. Some time has elapsed since the Boxer uprising, yet there are few whose interests were involved who have forgotten the commercial disturbance it caused. Long experience has made it plain that any reasonable degree of stability in exterior trade can only be maintained when such goods are manufactured as sell readily and are standard in many countries. Trade dullness in one country will then usually be compensated for by activity in others using the same class of goods. Details of the many kinds of standard fabrics which are used from China to Peru can not be here given, only sized goods and dhooties and a few fancy weaves being described. Full particulars regarding all important sorts have been given in earlier reports.

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time, considering also the enormous production of hand-spun and woven cottons, India is far ahead of any other oriental country in the use of factory-made fabrics. It is, however, probable that when the hundreds of millions of Chinese are led to abandon their use of cloths house made from native-grown cotton in favor of the modern factory output the demand of that country for European and American fabrics will be greater in both total volume and per capita consumption than the present takings of India.

The shipper in Manchester gives the maker full particulars of the counts of warp and filling, sley and pick, width and length, and either the required weight of the finished piece or the percentage of size to be added. In this way the abuses and dishonesty of thirty or forty years ago have been almost entirely corrected and abolished. For the last two or three decades this important section of the trade has been carried on with nearly complete freedom from fraud.

PERMANENT DEMAND FOR BROWN COTTONS.

For many purposes, especially in tropical and semitropical countries, there is a permanent demand for brown cotton cloths at prices which can only be met by the addition of size to the warp, and as these goods are never washed they serve for certain purposes fully as well and possibly better than the open and bare pure-sized sorts of equal counts of yarn and ends per inch. In the United States one occasionally hears the justice of this practice questioned, but enough has been said in these reports to justify the making of cotton stuffs to meet any demand. To a consumer earning but a few cents a day a difference of 1 cent a yard on a 15-yard loin cloth is an important consideration, and such a reduction can only be brought about by the addition to the cloth of cheaper substances than cotton.

There is a slow but noticeable decrease in the output of the very heaviest sized cloths, due, it is said, to the slowly increasing purchasing power of the people who use them. They are thus able to pay slightly more for goods containing more cotton and less foreign matter. The pith of the matter is, however, that for very many years the consumption of weighted goods will be enormous, and that they can be made by a large number of American mills at a figure which will yield a profit to their owners and place the cloths so made at least on a price level with the products of those who now control the numerous markets in which the goods are sold. In earlier reports the details of manufacture of the various standard sized cloths named were presented, and emphasis is here given to both the importance and the fairness of the practice of sizing in the making of goods for special purposes and to meet the demand in certain foreign markets.

SIZING WARPS AND FILLING COTTON CLOTHS.

Size is applied to the warp in the "slashing machine" in all mills making uncolored goods, and it will require few if any changes, and these of a minor character, to the "slashers" now working in American mills to enable them to take up the manufacture of medium and heavy sized cotton textiles. About the only outlay of capital required is for suitable size-mixing apparatus. In English practice sizing is classified under four heads, each embracing fabrics carrying a certain range of size percentages, the grouping being: (1) Pure sizing, carrying up to 15 per cent on the warp; (2) light sizing, carrying 15 to 30 per cent on the warp; (3) medium sizing, carrying 30 to 55 per cent on the warp; (4) heavy sizing, carrying 55 per cent and upward on the warp. In bleached and dyed cloths, both plain and fancy woven, Great Britain has a very large export trade.

To bring dyed and bleached goods of the cheaper kinds within the reach of the poorer classes in foreign countries, British dyers and bleachers very often "fill" their goods, thus giving them an extra weight or "body," and catering to the known preference of the ultimate wearer of the cloth for a fabric finished in this manner. It is just as essential for our bleachers and dyers to be prepared to furnish finishes to the specifications of foreign buyers as it is for our weavers to stand ready to make goods in strict compliance with instructions supplied by the purchaser. So in printed calicoes. We must adjust methods so as to be ready to supply at least any standard designs used abroad, even if they do not find any sale in the home market.

CLASSIFICATION OF EXPORTS.

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AMERICAN MILLS AND AMERICAN PURCHASES.

In previous reports it was pointed out that American mills, so far as immediate trade expansion abroad is concerned, are in a better

cotton manufacturing industry suffer correspondingly. Some time has elapsed since the Boxer uprising, yet there are few whose interests were involved who have forgotten the commercial disturbance it caused. Long experience has made it plain that any reasonable degree of stability in exterior trade can only be maintained when such goods are manufactured as sell readily and are standard in many countries. Trade dullness in one country will then usually be compensated for by activity in others using the same class of goods. Details of the many kinds of standard fabrics which are used from China to Peru can not be here given, only sized goods and dhooties and a few fancy weaves being described. Full particulars regarding all important sorts have been given in earlier reports.

SIZED GOODS AND DHOOTIES.

Medium and heavy sized gray cloths are of especial interest. It is estimated that nearly 500,000 Lancashire looms, or two-thirds of the total, are engaged in the production of cloth carrying over 40 per cent of size in the warp. Indeed, gray goods form 37 per cent of Britain's total exports of piece goods. This class of goods is important to the managers of American cotton mills; first, because it shows the greatest field for trade expansion and one as yet practically untouched and certainly unworked by the textile concerns of the United States; and, second, because more than half the enormous over seas takings can be profitably made by them and shipped direct from the loom to the foreign purchaser. At the present time the United States produces nothing that will meet the requirements of the user of sized goods. Neither in "feel" nor appearance do any of the regular products of American mills approach those goods of competitors which have an established reputation of long standing. Many American firms export grays or browns, but despite their higher intrinsic worth, due to their comparative freedom from adulteration, they sell reasonably near the same prices as British medium-sized cloths; yet, as will be obvious to every manufacturer, the added weighting material in the foreign commodity materially reduces its cost to produce; and, so long as the purchaser not only is satisfied but prefers the weighted fabric on account of its fullness and feel, American manufacturers can not hope to grapple with their foreign rivals with any satisfactory measure of success unless they turn their attention to similar manufactures.

STANDARD INDIA SHIRTING AND DHOOTIES.

To illustrate the saving, a standard 8¼-pound India shirting, 39 inches wide, 64 by 60, and 37½ yards long, the warp being sized 100 per cent, is taken, and it is found that the cost is reduced 1 cent *a yard by the weighting*, and this is no mean consideration in India.

While such weighted goods as sheetings, T cloths, domestics, Mexicans, madapollams, Wigans, and drills are standard fabrics, they are shipped to China, Aden, Turkey, India, Japan, Oceania, South America, and the Levant. On the other hand, dhooties go only to the East Indies, West Africa, and near-by territories. Dhooties comprise an important percentage of England's immense trade in cotton goods with India. How considerable a proportion this is may be gathered from the importation of cotton goods of British origin by the province of Bombay. During the six months ended June, 1905, a total of 6,528,851 pieces were recorded, 1,874,401 of which, or slightly over 28 per cent, being dhooties made up of 1,412,757 pieces classed as gray and 461,644 pieces white or bleached.

The white dhooties are woven from gray yarns, the colored borders and headings being composed of dyed yarns which will stand bleaching. It may be pointed out that this great trade is absolutely untouched by American manufacturers. During 1906 Bombay imported only 22 per cent of the gray goods taken by British India from England. This shows the enormous trade in this kind of cloth. Taking proportion as the only method available to get at the total, approximately 13,000,000 pieces is estimated as the East Indian imports of dhooties for the year. Before leaving this subject attention is directed to the somewhat amazing fact that India, with a population of less than 290,000,000, imported in the fiscal year 1906 over $141,000,000 worth of cotton cloths and yarns, taking the first place among oriental consumers of cottons, with China and her 400,000,000 people rather a bad second. This suggests that not only ought we to assiduously cultivate the market of East India, but if American-made cottons were exploited in China as vigorously as the British products have been pushed in India the size of the trade which could be developed in the Celestial Empire would be almost beyond belief.

INDIA'S IMPORTS NOT ALL CONSUMED AT HOME.

If the importations of India are examined from a standpoint of per capita consumption the official statistics must be modified to meet the trading with contiguous countries which have no seaboard of their own. For instance, the transfrontier trade between India and Afghanistan during 1906 showed exports from India amounting to 10,500,000 rupees, and transfrontier exports to Nepal valued at 15,500,000 rupees (rupee, 32 cents). To these must be added the comparatively small value of commerce of like character between India and Bhutan. As the item of greatest importance in these transactions is cotton manufactures, it is obvious that the takings of British India are not all consumed in that country. At the same

time, considering also the enormous production of hand-spun and woven cottons, India is far ahead of any other oriental country in the use of factory-made fabrics. It is, however, probable that when the hundreds of millions of Chinese are led to abandon their use of cloths house made from native-grown cotton in favor of the modern factory output the demand of that country for European and American fabrics will be greater in both total volume and per capita consumption than the present takings of India.

The shipper in Manchester gives the maker full particulars of the counts of warp and filling, sley and pick, width and length, and either the required weight of the finished piece or the percentage of size to be added. In this way the abuses and dishonesty of thirty or forty years ago have been almost entirely corrected and abolished. For the last two or three decades this important section of the trade has been carried on with nearly complete freedom from fraud.

PERMANENT DEMAND FOR BROWN COTTONS.

For many purposes, especially in tropical and semitropical countries, there is a permanent demand for brown cotton cloths at prices which can only be met by the addition of size to the warp, and as these goods are never washed they serve for certain purposes fully as well and possibly better than the open and bare pure-sized sorts of equal counts of yarn and ends per inch. In the United States one occasionally hears the justice of this practice questioned, but enough has been said in these reports to justify the making of cotton stuffs to meet any demand. To a consumer earning but a few cents a day a difference of 1 cent a yard on a 15-yard loin cloth is an important consideration, and such a reduction can only be brought about by the addition to the cloth of cheaper substances than cotton.

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AMERICAN MILLS AND AMERICAN PURCHASES.

In previous reports it was pointed out that American mills, so far as immediate trade expansion abroad is concerned, are in a better

position to exploit the market for the gray goods, as these form the principal item of exports. But as bleached goods are made up of converted plain and fancy woven gray goods, it follows that they are the next easiest means of approach to the trade we are anxious to acquire, and yet, as the statistics herein given show, we have as yet barely touched the fringe of this second important classification. Looking at the reverse side of the question and reflecting upon American imports of cotton cloth, it is quite conservative to say that most of the cotton piece goods we purchase abroad could be made equally well and at a profit in our own mills. In a Lancashire weaving shed were shown a large number of looms at work on a very fine grade of plain cloth, all of which is sent to the United States to be used for typewriter ribbons, the construction being 128 sley, 160 picks to the inch, the warp being 80s combed Sea Island, and the filling 110s combed Egpytian. In the manufacture of these goods the greatest care had to be exercised, as the purchaser had reserved the right to reject any piece which he considered not up to his high standard. Counting the seconds thrown out by the mill and the rejections of the Manchester exporter, only 25 per cent of the goods made were accepted; but practically 95 per cent of the pieces rejected were sold to other buyers at the ruling price for goods of this construction. The American buyer was willing to pay a fancy price for perfect goods, and the manufacturer further said that this price was so far above the market that it paid him handsomely for the extra trouble he had to take. From time to time a large number of samples of gray, white, colored, fancy, and printed cloths have been sent to the Bureau of Manufactures, in order that our manufacturers may inspect them.

FABRICS SOLD IN MANY COUNTRIES.

A large proportion of the kinds of goods which are marked as selling in the British home market are also shipped in greater or lesser volume to South Africa, Australia, New Zealand, and Canada. One striking feature of the ultimate destination of the wide variety of fabrics dealt with in former reports is that one sort often goes to widely scattered markets. At the expense of repetition, it must be emphasized that this affords an excellent balance wheel for the trade, for should there be a trade disturbance in one country it may, and often is, compensated for by activity in another market far removed.

WASTE AS A BY-PRODUCT.

During the calendar year 1906 the United States exported 40,500,000 pounds of cotton waste, valued at over $2,000,000, averaging in price over 5 cents per pound. All this by-product forms

raw material for European manufacturers and is converted by them into yarns and fabrics of one sort or another. I have procured samples made from waste products (described at the end of this report on the cotton industry) of cloth napped on both sides and afterwards printed—a sort of flannelet—and also of Wigan waste twills. Waste yarns are also spun for making blankets, tapes, cords, candle wicks, sponge cloths, sanitary napkins, cheap twilled sheets, and cretonnes. Innumerable are the mixtures of wastes used by different spinners to get results. Special machinery built on the "woolen" principle is most commonly used to do this work, and while the data relating to the machinery employed and its operation are readily obtained, much secrecy surrounds the operations of preparing and mixing the materials. Novelty yarns are made from waste mostly in Germany and Belgium, and in Yorkshire the waste yarns are spun to be incorporated into cheap so-called woolen fabrics. A catalogue of machinery built for the manipulation of cotton waste, together with samples to show some of the kinds of waste yarns offered on the Manchester market, have been sent to the Bureau of Manufactures. The samples are one large coarse mule cop made from all low-grade waste; two cops of finer counts made from a mixture of low Indian (Surat) cotton and waste, and skeins of 4s and 2s mule yarn, all waste. Although the mule preponderates as the type of machine for spinning waste, spinning frames are also made which spin from carding engine condenser bobbins. It is gratifying to have the assurance that the American cotton trade is becoming alive to this field for profitable investment, which is not yet fully exploited in this country. All our cotton-waste product ought to be manufactured in American mills, and it is gratifying to learn that a number of orders for waste-machinery equipment have been placed this year.

PREPARING GOODS FOR MARKET.

It is seldom that the Lancashire weaver of cloth pays any further attention to his goods after they leave the mill warehouse. If for converting purposes, whether bleaching, printing, or piece dyeing, they are shipped to a converting establishment designated by the purchaser, who also instructs the finisher as to design, finish, color required, etc. On low-count goods, about 52 by 28, 36 inches wide, the converters charge one-half cent per yard for bleaching, while on goods from 52 by 52 to 84 by 84 the charge would be about three-fourths cent per yard. The charge on heavy goods over 84 by 84 would be approximately 1 cent per yard if we were to assume that the yarns would be about 36s warp and 40s filling. A closer approximation of the cost of bleaching for actual goods can be obtained from the

particulars of the samples which are at the Bureau of Manufactures. The charge for printing, as is well known, is modified by so many conditions that it is somewhat difficult to convey even an approximate idea of the cost, but it is learned that the price for this work on some of the printed samples sent, which range from 48 inches to 56 inches wide, is from 2¼ to 2¾ cents per yard, the cost varying according to the colors and the number of shades to be printed on the goods.

Again, in the matter of dyeing piece goods there is a wide difference in the cost, but from the particulars of the samples, and an examination of the samples themselves, American manufacturers can obtain accurate information as to the cost of this kind of work in Lancashire. Some of the colored samples are put through a process which is technically known as "shrinning." This is to obtain a glossed or polished finish, which is shown in some of the samples. By general trade custom among dyers, the minimum quantity which they will take to dye at regular prices is 10 pieces of 60 yards of each shade, or the equivalent length of this number of pieces. Many of the samples submitted may be either bleached or dyed in various colors, and when fabrics suitable for either purpose are sent to the finisher, common colors are usually charged one-fourth cent per yard (single width) above bleached, and blacks one-half cent per yard (single width, more than the charge for bleaching.

MAKING UP AND PACKING.

It is quite common for bleachers, printers, or dyers to be requested to make up and pack the finished pieces into cases or bales ready for export, so that when they are delivered at the merchant's Manchester warehouse it is not necessary for him to open the packages, the finisher, of course, charging for this extra work. As an illustration, a piece of medium goods, 33 inches wide, 68 by 70, bleached, made up, and packed ready for export would cost the merchant about 1 cent per yard. At other times the converter is ordered to make up the pieces into bolts, ticketed, tied, and delivered to the Manchester warehouse, where they are simply made up into assorted packages ready for shipment abroad. The price for doing such work is obviously variable, but can be found for different classes of goods made up for various markets on the tickets of the samples previously referred to.

ENGLISH DISTRIBUTING SYSTEM AND THE ROYAL EXCHANGE.

Manchester is the business center, and the work of manufacturing and distributing are separated completely, the home trading house standing between the maker and the retailer, while so-called shipping houses act in like manner as middlemen between the mills and foreign

purchaser. All these houses have their offices in Manchester, and the Royal Exchange, with a membership of over 8,000, is in the very heart of the city, where practically the whole of England's great home and foreign cotton yarn trading is done. In effect, every mill in the country has its representative there each Tuesday and Friday—the two principal market days. The yarn spinner sells and the weaver buys his yarn on 'change. Machinery makers, supply dealers, yarn and cloth agents congregate on the floor to the number of 5,000 or 6,000 for two or three hours on market days.

ECONOMY IN DISTRIBUTION.

It is a magnificent system for economizing in expense of distribution. Consider an example: The representative of a shipping house wishes to fill an order for, say, printed calicoes. On 'change he finds many weavers of this class of goods. The goods are purchased in the gray. He next finds a printer and bargains with him as to price, pattern, and delivery. The weaver then turns to the spinner and purchases the yarn to make the order, which, when completed, is shipped by the weaver to the printer, who in turn delivers it finished to the shipper's warehouse, where the lot is examined, labeled, folded, packed, etc., by men who thoroughly understand the tariff requirements of the countries to which the goods are to be shipped as well as the requirements of the purchaser abroad. So far as spinners and weavers go, Manchester business is done on practically a cash basis, terms being 2½ per cent off fourteen days. It is safe to say that not 5 per cent of the English cotton manufacturers are directly engaged in foreign trade, and these are firms of long standing, making fancy goods and specialties. The shipper, with his established connections in and salesmen covering many countries, buys from the manufacturer on the usual terms. Leaving the maker of merchandise to attend to his particular duties, the shipping firm shoulders the long credits, packing, invoicing, and all details which make a manufacturer shudder when explained to him. Many of these firms have their headquarters in foreign countries, having come to Manchester simply because there they can most advantageously buy every kind of cotton product needed, made to meet the tastes, uses, and pocketbooks of their customers.

EFFECTIVENESS OF MANCHESTER'S ORGANIZATION.

The good and effective work done by the Manchester Chamber of Commerce can not be overlooked. With active committees and a paid secretary and staff that watch closely measures or developments of every kind at home and abroad which will in any way affect adversely the industry or commerce of their district not only by

correspondence, but by personal work do they strive to strengthen their commercial position, and they also fight with vigor every attempt to curtail their existing privileges. As the cotton trade is the backbone of Manchester's prosperity, the officials of the chamber naturally devote much of their time to it. Yet no other branch of industry or commerce is neglected. A monthly official publication keeps the members informed of the work the organization is engaged in from time to time.

Concentration of the cotton mills in a small area makes for economy. Many savings in handling products accrue to our Lancashire competitors from this centralization, which unfortunately can never be matched in the United States with cotton mills scattered, as they are, from Maine to Texas. To counterbalance these, we have advantages, already indicated, which can not in the nature of things be secured by the manufacturer on the other side of the Atlantic.

ADVANTAGES OF BRITISH MILLS.

One of the advantages of British mills is economy in shipping yarn and cloth. Yarn is shipped from spinner to weaver in cane baskets and skips, the former being used for filling and the latter for warp, or, as they are termed in England, "twist" cops. A basket will contain slightly over 100 pounds and a skip about 300 pounds of yarn. The freight is paid by the purchaser, and the rate depends on distance, but for 30 miles or so (an average distance) it is about 15 cents per hundredweight of 112 pounds, and the rate on cloth is the same for a like distance. The skips and baskets are returned to the spinner, and the return freight rate in the Lancashire district on these "empties" is a uniform one of 2 cents each on baskets and 4 cents each on skips, including delivery from depot to mill and in the larger centers collection from mill to depot. This is a further illustration of the economy which Lancashire enjoys when compared with the heavy and expensive wooden cases which spinners in the United States have to purchase for every shipment.

Freight on cloth is paid by the weaver, but when it is reshipped by the merchant to the finisher the former pays the carrier's charges. On fabrics above the lowest grades the merchant in Manchester receives the cloth in the gray at his warehouse, where he maintains a staff to examine and refold every piece, so that he then has a check on both weaver and finisher. Faults attributable to the manufacturing processes are noted, and when the goods are again reexamined in the merchant's warehouse after finishing any damages caused by the finisher can be effectively brought home to him. Unless it is to be forwarded to its final destination in the gray state as it leaves the

loom, cloth is shipped to the finisher in uncovered bundles, loaded on a movable float carried on a "lurry," a sort of flat vehicle. These carry several tons. When taken to the freight depot the float and its load are transferred by a derrick to a flat car and covered with a tarpaulin—still another example of the saving of time and expense in covering of bales and handling. It is these economies which make possible the high degree of specialization existing in England.

EXPERT PACKING FOR EXPORT.

American exporters have for years been admonished by American consuls and others to improve methods of packing, and when such men, scattered in every part of the world, find it necessary to criticise our carelessness in this important particular there must be some good ground for complaint. In England large shippers generally do their own packing, employing men who are familiar with the kind of package needed to suit the various systems of transportation, from landing by surf boats, or transporting across mountainous countries on burros, to ordinary railroad and steamship routing. Moreover, they understand the sort of covering material to use so that minimum customs duties will be collected. In nearly every country of South America duties are levied on the contents of any package containing mixed merchandise on the basis of the highest rate of duty chargeable against any goods in the package, and duties are collected on gross weights, including the case or covering of the bale. Hence one can realize the importance to the forwarding department of a mercantile establishment of thorough information of these and other details, attention to which reduces charges, avoids friction and annoyance, and helps sales.

It is seldom that manufacturers put up goods for export. The work is done by a department of the foreign shipper, or, in case of smaller firms and agents, the merchandise is sent to a packing firm, of which there are many in Manchester. These concerns not only understand the details above described, but they realize, as does the shipper, the importance of paying strict attention to instructions given as to the assortment of goods to be put into each bale, to avoid the necessity of opening and reassorting at destination. It has been already explained that converters are often required to do this work.

Packing for export has developed into a distinct trade in Great Britain. Not only piece goods, but yarns for shipment abroad are packed by experts. An example of the prevailing prices for doing this work will convey a general idea of the cost for packing other kinds of yarn. Prices ruling this year for packing 10-pound bun-

dles of cotton yarn into bales for continental destination. the discount being 5 per cent, are appended:

Bundles.	Price.	Bundles.	Price.	Bundles.	Price.
10	$0.64	50	$1.04	90	$1.42
20	.74	60	1.14	100	1.64
30	.84	70	1.24		
40	.94	80	1.34		

The packer supplies all the material for covering the bales at his own expense.

TERMS OF PAYMENT FOR GOODS EXPORTED.

Long terms, which seem to be a bugbear to American manufacturers, do not at all concern the British producer. This burden is shouldered by the shipper. I can not attempt to touch more than lightly on this matter, seeing that almost every purchasing country exacts different terms, and in fact terms extended to merchants in the same country vary not a little. Common terms are from six to twelve weeks from date of invoice, eight weeks being the average. The foreign buyer is charged with freight, extra marking, special packing, ticketing, etc. For payment within the time above specified he is allowed a discount of 2½ per cent from the gross amount of the bill. He also pays the import duty. Again, goods are frequently shipped to be placed in bonded warehouse at their destination, and not released until the whole or some agreed-upon proportion of the amount of the invoice is paid. The buyer also usually pays the storage and insurance charges. The latter plan is adopted with new and not well-known customers, or with buyers whose financial standing is somewhat doubtful. Unfortunately in the United States there has not yet been developed the type of merchant who has the experience and connections to carry on commercial transactions abroad in the manner here outlined. Nor can we expect that the foreigner will modify his commercial systems to meet our convenience or prejudices. Competition is as keen as it is world-wide, and to succeed we must adapt ourselves to existing conditions.

AMERICAN LACK OF COMMERCIAL ORGANIZATION.

To overcome most quickly and effectively our admitted lack of commercial machinery for a world-wide distribution of our cotton manufactures, and to obtain immediate results of any considerable magnitude, a firm should be formed having offices in Manchester and New York which would sell American goods to the shipping houses already established in England. The question of credit would then

be settled, because under this plan the foreign shipper in Manchester would pay for his purchases 2½ per cent off, fourteen days, and thus relieve the manufacturer of any anxiety on this score. In truth, as most American cotton manufacturing corporations are now organized, it would be impossible for them to assume the responsibility of carrying accounts for long periods. Few of them have an overabundance of working capital, and there must therefore be provided intermediaries who can carry the long risks inevitable to foreign trading. The British cotton trade has solved this problem admirably, and it remains for us to establish a similar system before we can hope to effectively compete in the world's markets. Goods would then be shipped direct to their destination from New York or other convenient outport, and some of our mills would from time to time take up the manufacture of the classes of cloths not as yet made in this country which have been named as used most freely by nonmanufacturing peoples. Gradually as shippers found they could supply their requirements here as well or better than elsewhere, they would establish branch offices in our textile centers, and our future would then be assured.

INTERNATIONAL BANKING.

The question of international banking is a more important factor in the successful development of export trade than is generally thought. Pliancy in the means of exchanging money is just as important in international trading as a suitable system for selling merchandise. British foreign banking facilities are ample. I have selected from a much larger number 24 British foreign banks with head offices in London, whose combined paid-up capital and surplus is $70,000,000, and most of which have additional capital subscribed and available in case of need. All these banks pay good dividends, ranging between 6 and 14 per cent annually. Can we wonder at the old saying that "Every gold coin in the world goes through London once a year and has a piece clipped off it in transit?" The tribute we thus pay might just as well be kept at home, and the establishment of banks of this character would help to ease the way of the exporter.

To show the ramifications of British foreign banks, a list of some of the more important ones is appended, giving their paid-up capital, dividends paid for 1905, and the number of branches each operates. From this information it will readily be seen how thoroughly the world is covered, especially when it is remembered that there are very many other British foreign banking institutions not included in the list.

Designation.	Capital.	Annual dividend	Branches.
		Per cent.	
African Banking Corporation	$2,000,000	6	37
Anglo-Austrian Bank	10,000,000	6½	8
Anglo-Californian Bank	1,500,000	8	.....
Anglo-Egyptian Bank	2,500,000	12½	8
Anglo-Foreign Banking Co	2,100,000	7½	.....
Anglo-Italian Bank	250,000	10	.....
Bank of Africa	5,000,000	11	65
Bank of Australasia	8,000,000	12	170
Bank of British North America	5,000,000	6	47
Bank of British West Africa	300,000	8	14
Bank of Egypt	2,500,000	13	15
Bank of India, Australia, and China	4,000,000	11	26
Bank of Tarapaca and Argentina	3,750,000	6	16
British Bank of South America	2,500,000	8	9
Colonial Bank	3,000,000	7	13
Delhi and London Bank	1,685,000	4	7
English, Scottish, and Australian Bank	2,695,000	(a)	94
Hongkong and Shanghai Banking Corporation	10,000,000	14	26
London and Brazilian Bank	3,750,000	12½	15
London and River Plata Bank	4,500,000	19	14
London Bank of Mexico and South America	2,000,000	10	.....
London, Paris, and American Bank	2,000,000	8	3
National Bank of India	3,000,000	12	20
Standard Bank of South Africa	7,740,000	16	147

a Not stated.

Consider for a moment the convenience to a shipper who has taken a note at, say, three, four, or six months in payment for his merchandise. He accepts or indorses the note, and then, whatever country his customer may reside in, the exporter can discount the paper in London and at once turn the cash into his business again. When long credits are given the customer pays interest on the extended time, usually at the rate of either 5 or 6 per cent per annum. Another advantage coming from the operation of branch banks abroad is that any one of them can report on the financial worth of every prominent business house in the country it does business in. That the foreign banking business is profitable and that it leads to exterior trade growth is certain. Therefore our financial and banking interests should see to it that the payments for our already enormous sales and purchases abroad are made through American banks organized to do business abroad.

LONG CREDITS OFTEN IMPERATIVE.

Viewing the question broadly, our merchants should recognize that the practice of extending long credits to wholesale purchasers in certain over-sea agricultural countries must be, on the whole, profitable; otherwise the system would have long ago killed itself. *It is as necessary in* the commercial system of some countries as was

the plan of advancing money on the unplanted cotton crop of the Southern States, followed by merchants for a generation or more, and not uncommon to-day. To exemplify, in many coffee-growing districts of Brazil and other South American countries the country storekeeper makes advances to the coffee grower, consisting mostly of merchandise of one sort and another. The storekeeper in turn buys his wares from the wholesale importer, to be paid for when the coffee crop is picked and marketed. Hence the importer, although perfectly sound financially, must perforce exact long credit from the exporter, paying a fair rate of interest for the accommodation.

OVER-SEA TRANSPORTATION.

Great Britain has neglected no opportunity to secure to herself every convenience which can in any legitimate way give her the upper hand in bargaining between her merchants and those of other nations. In ocean-going transportation she is paramount. Transportation of merchandise involves three important requirements. First, low freight rates are an advantage. These are secured to England by the enormous ocean-going tonnage she owns, compelling competitive rates. True, there is a present outcry against a so-called shipping ring. This, however, is but an incident, since, if unfairness exists, the fault will be ultimately corrected by one means or another. Out of a total tonnage of steam and sailing vessels of over 100 tons of the several countries of the world, amounting to 36,000,000 tons, no less than 17,000,000 tons, or nearly one-half, sail under the British flag. Depending upon ships of competing nations to carry our products is in line with a retail grocer intrusting the delivery of his customer's purchases to a rival. grocer's delivery wagon. Second, when goods are shipped they should reach their destination as quickly as possible, for the time occupied in transit means that the value of the merchandise lies idle and without earning capacity for that period. Third, a purchaser abroad needs to be reasonably sure of the time his goods will arrive. and that they will not have to wait long for a steamer. Consequently frequent and regular sailings are an essential to satisfactory business. All these advantages England fully enjoys, while the United States, on the other hand, is deplorably lacking in like conveniences.

THE BROOKLANDS AGREEMENT.

Disputes between employers and workers involving strikes and their attendant breaches of contracts are always disastrous in many ways. British cotton manufacturers are as highly organized as are their employees. During a dispute at the end of 1897 the employers and workers came together and adopted the now well-known "Brook-

lands agreement," which contains twelve clauses and an amendment, the three of greatest interest and moment to the American cotton trade being the sixth, tenth, and eleventh. The latter clauses are of especial interest, showing as they do the weight attached by master and man to the maintenance of their export trade. The three clauses read:

Sixth. That in future no Local Employers' Association, nor the Federated Association of Employers, on the one hand, nor any Trades Union or Federation of Trades Unions, on the other hand, shall countenance, encourage, or support any lockout or strike which may arise from, or be caused by any question, difference or dispute, contention, grievance, or complaint with respect to work, wages, or any other matter, unless and until the same has been submitted in writing by the secretary of the Local Employers' Association, to the secretary of the Local Trades Union, or by the secretary of the Local Trades Union to the secretary of the Local Employers' Association, as the case may be; nor unless and until such secretaries or a committee consisting of three representatives of the Local Trades Union with their secretary, and three representatives of the Employers' Association with their secretary shall have failed, after full inquiry, to settle and arrange such question, difference or dispute, contention, complaint, or grievance, within the space of seven days from the receipt of the communication in writing aforesaid; nor unless and until, failing the last-mentioned settlement, or arrangement, if either of the secretaries of the Local Employers' Association shall so deem it advisable, a committee consisting of four representatives of the Federated Association of Employers, with their secretary, and four representatives of the Amalgamated Association of the Operatives' Trades Union, with their secretary, shall have failed to settle or arrange as aforesaid, within the further space of seven days from the time when such matter was referred to them; provided always that the secretaries or the committee hereinbefore mentioned, as the case may be, shall have power to extend or enlarge the said period of seven days whenever they may deem it expedient or desirable to do so. Should either of the local employers' association fail to call such a meeting within seven days (unless by consent of the other side), then the party which has asked for the meeting shall have the right to at once carry the question before a joint committee of the Employers' Federation and the Operatives' Amalgamation without further reference to the Local Association; and should either the Employers' Federation or the Operatives Amalgamation fail to deal with the matter in dispute within a further seven days, then either side shall be at liberty to take such action as they may think fit.

Tenth. It is agreed that in respect to the opening of new markets abroad, the alteration of restrictive foreign tariffs, and other similar matters, which may benefit or injure the cotton trade, the same shall be dealt with by a committee of three or more from each federation, all the associations agreeing to bring the whole weight of their influence to bear in furthering the general interest of the cotton industry in this country.

Eleventh. The above committee shall meet whenever the secretary of either federation shall be of opinion that questions affecting the general interests of the cotton trades should be discussed.

IMPORTANT MARKETS NEGLECTED.

Brief mention of two other important markets not yet touched must be made. American exports of cotton piece goods to Europe in the calendar year 1906 were 5,069,499 yards, valued at $639,244. Germany and the United Kingdom are classified as having received 365,799 yards, worth $29,327, and 3,019,341 yards, valued at $383,550,

respectively, while to other European countries are credited only 1,684,359 yards, valued at $236,367. Contemplate these meager shipments when compared with British sales to Turkey and Egypt. England sent to Turkey in the same year 478,951,500 yards, worth $25,000,000, and to Egypt 297,203,800 yards, worth $15,000,000. England also sold to Turkey 15,378,000 pounds of cotton yarn and to Egypt 3,514,000 pounds. During the last three or four years a successful federation of the cotton spinners and manufacturers of England and the Continent has been effected. It is an organization for mutual protection and information. In the last confidential report issued by the federation upon cotton consumption and stocks of cotton 71,054,503 spindles, representing fourteen countries, are set down as having reported. This demonstrates the gigantic interests represented by the International Federation.

TECHNICAL TEXTILE EDUCATION.

It has long been fully recognized by the manufacturers, both in continental Europe and in Great Britain, that only by imparting a thorough technical training to their young men can they maintain their present commercial standing or hope to increase it. The value of technical education has been indisputably demonstrated. The skilled hand guided by trained intelligence is security for superior results. In the cotton trade comparatively few young men can afford to spend two or three years of their entire time in a day technical school to obtain training of this character. In consequence European industrial centers have provided well-equipped technical schools and competent instructors to train the youth of their artisans in evening classes, which can be attended without inconvenience or loss after the day's labor is completed.

To the cotton trade of the United States it should be interesting to have available a brief résumé of the system followed in Lancashire, especially when it is known that discussion on this subject with leading English manufacturers brought out favorable opinions of the results of the work of late years as shown in the markedly increased ability of their managers, overseers, and common workmen. The more impressed our manufacturers become and the sooner they realize that their best asset and that of the nation lies in the brains of their people, the more quickly shall we see an extensive system established in our industrial centers for supplementary education in evening classes which will cover technical and scientific subjects. We must take advantage of every legitimate weapon which can be obtained if we wish to conquer in this strenuous warfare for commercial supremacy in the markets of the world. An enlargement of our present facilities for evening textile education furnishes a potent weapon for future success.

AMAZING GROWTH OF LANCASHIRE'S COTTON INDUSTRY.

The recent erection of new cotton mills in Lancashire has been without parallel in industrial history. In order to emphasize the marvelous extension in the productive capacity of the Lancashire zone it may be pointed out that the number of spinning spindles added within the past three or four years in the district of which Manchester is the distributing center and Liverpool the cotton buying headquarters exceeds 10,000,000, with approximately enough new looms to take the increased yarn output. This development is all the more astounding when it can be truthfully said that this English growth is greater than the total number of spindles operated in either Germany, India, Russia, France, or any other country in the world except the United States, and that the total spindleage of our Southern States does not reach the growth in Lancashire since 1900. And no end seems to be in sight, for new mills are projected almost every week. Some halt in the movement is evident, but this is only due to the fact that cotton-machinery makers have their output sold so far ahead that it is impossible to obtain deliveries for new mills for a year or more to come. Nor have other manufacturing countries been at a standstill. Continental Europe and Japan and India have been abnormally active in mill building. All this should be looked upon with satisfaction, by the American cotton grower at least, for it is reasonably certain that the demand for some years to come will be such as to insure him a fair return for his crop. It is estimated that when all the new spindles in England are turning they will consume some 700,000 additional bales of cotton annually. Comparisons are generally illuminating. While England has added 10,000,000 spindles in a few years, it is learned from an American publication that the gain in the United States in spindleage from 1904 to the end of 1906 was only 2,022,981; in this number it is inferred that twister spindles were included, and these are nonproducers.

COST AND METHODS OF PROMOTING NEW MILLS.

The cost of constructing and equipping both spinning and weaving plants in England has largely increased during the present mill-building boom. Where a few years ago $87 to $97 per loom would complete a weaving shed it now costs $121 to $145, including the preparatory processes of spooling, warping, slashing, etc. Similarly a mule spinning mill, on, say, 50s carded, which formerly cost $5.20 per spindle now costs $7.30. There is a good deal of complaint heard about the way in which many of the new mills are being promoted. Take a typical instance: The capital stock of a 100,000-spindle mill

was fixed at $500,000, in shares of a par value of $5 each, payable at the rate of 50 cents a share at intervals. The mill is nearly in full operation at the present time and only $1.50 a share has been called in. It is proposed to call on the stockholders for not more than $2.50 a share, the remainder of the money needed being secured partly from banks, but mostly from small depositors, who loan their savings to the mills at 4½ per cent per annum. Virtually the manufacturing company conducts a banking business. Later the second $2.50 a share will be called in, when another mill will be built. The strongest complaint arises, however, from the habit of requiring everybody who desires to secure contracts for either machinery, equipment, construction, or building materials to take a number of shares in the enterprise as a condition precedent to awarding the work. That the industry is at least temporarily very prosperous is shown by the average earnings of 35 per cent on the share capital during the first quarter of the current year (1907) by such companies as publish balance sheets. Most mills are preparing against a future rainy day by increasing their reserve funds and writing off more than the usual percentage for depreciation.

DEVELOPING NEW COTTON-GROWING AREAS.

Since the cotton shortage of 1903–4, and the attempted corner and consequent high prices which then ruled, the cotton trade of England has led, and continental Europe has followed, in a movement to introduce cotton growing into their respective colonies. There has also been an attempt by the British organization to increase the output of India and Egypt. The European user of cotton contends that this ought to be done if for no other reason than that such an enormous industry ought not to be dependent on the vagaries of the weather in a portion of one country. It is also claimed that if the cultivation of the material in widely scattered countries is materially developed the admitted malign influence of the professional speculator in the raw material market will be minimized. The largest body organized for this work is the British Cotton Growing Association, operating under a royal charter and with an authorized capital of $1,250,000, of which $1,160,000 was subscribed up to August 31, 1906. Of this amount the mill owners subscribed $468,000 and the workers in the mills $85,000. Through the efforts of the association the acreage planted to cotton in India was increased from 18,025,000 acres in the crop year 1903–4 to 20,041,000 acres in the season 1905–6. To augment Egypt's yield the Egyptian government has been prevailed upon to raise the Assouan dam on the river Nile 19½ feet, in order to increase the volume of water available in the dry season for irrigation purposes.

NIGERIA THE POSSIBLE FUTURE COTTON FIELD.

The main hopes of the association are centered in northern Nigeria. According to the latest statistics the area and population of Nigeria are as follows:

Section.	Square miles.	Population.
Northern Nigeria	256,400	10,000,000
Southern Nigeria	52,760	3,000,000
Lagos	24,500	1,400,000
Total	333,660	14,400,000

Nigeria is therefore nearly three times as large as the United Kingdom, more than half as large again as either France or Germany, one-fifth the size of India, and more than half as large as the whole of the cotton States of the United States, which have an approximate area of 600,000 square miles. It will therefore be seen that the possibilities of Nigeria as the great cotton field of the future have not been in any way exaggerated, and the exploiters of this territory find additional satisfaction in the evidence that the quality will be in every way suitable for Lancashire's requirements. The one existing difficulty is transport. The government service of steamers on the rivers is by no means reliable, and during several months navigation is almost impossible either on the Niger above Lokoja or on the Benue. With the exception of a small narrow-gauge track from the Kaduna River to Zungeru there are no railways, and roads are practically nonexistent.

Cotton grown in Africa, more or less under the auspices of the association, during the last four seasons has shown a steady increase. The production in 1903 was 1,900 bales; in 1904, 5,500 bales; in 1905, 11,300 bales, and in 1906, 20,000 bales. The Bureau of Manufactures has been furnished with samples of cotton grown in northern Nigeria and Lagos, together with a sample of native wild cotton; also a sample grown in Perus from Sea Island seed.

INCREASED COTTON SUPPLY NEEDED TO MEET DEMAND.

It has been estimated that prior to the present unprecedented boom in British cotton-mill building the normal increase in the world's consumption of cotton was approximately 400,000 bales annually. If we add to this even a part of the abnormally increased British and other requirements we get at least 1,500,000 more bales needed each crop year than the spindles could previously consume. Counting for each acre planted to cotton, an acre utilized in crop rotation, growing feed for stock and work animals, as well as vegetables and corn for the farm hands, and not forgetting the proportion of

land in each considerable tract unsuitable from one reason or another for cotton growing, this means that somewhere either in the American cotton belt or elsewhere an increased domain of 6,500,000 acres will have to be brought under the sway of King Cotton.

The rapid increase in the number of new spinning spindles installed in Lancashire has been emphasized, but the growth of the weaving branch of the industry must not be overlooked. Developments therein have about kept pace with the growth in spinning. Without giving the details of the total number of new looms started within the two years just ended, it may be said that in that period the East Lancashire weaving centers made the following additions: Blackburn, 9,260 looms; Colne, 3,500; Nelson, 2,500; Preston, 4,500, and Burnley, 6,600.

RESTRICTIVE FACTORY LEGISLATION.

Manufacturing operations in England are regulated by a multitude of statutory restrictions and regulations. The "factory and workshop act" is the name of the code for regulating the conditions of industrial employment. Its enactments, however, are so complicated with special provisions and regulations, modifications and extensions, exceptions and exemptions, that the requirements to be observed in any particular case, and the persons responsible for their observance, can not be readily ascertained except by a legal expert. The act applies to all factories and workshops generally. Some of its provisions apply to cotton mills of all kinds, others to cotton spinning mills only, while many specially refer to weaving sheds.

Some of the things subject to governmental regulations are cleanliness, whitewashing of workrooms, amount of air space per worker, ventilation, temperature and humidity, sanitary conveniences, and cloakrooms. Safety must be secured by fencing dangerous places in machine and power-transmission gearing. Restrictions must be observed as to cleaning when machinery is in motion, ample provision of fire escapes must be made, and doors must not be locked and must open outward, except in the case of sliding doors. There are also restrictive provisions as to employment of women, young persons, and children, the compulsory education of children, time allowed for meals, and holidays.

SCHEDULES OF WAGES TO BE POSTED.

It is further directed by the act that in every factory the occupier shall, for the purpose of enabling each worker who is paid by the piece to compute the total amount of wages payable to him in respect of his work, cause to be published particulars of the rate of wages applicable to the work to be done, and also particulars of the

work to which that rate is to be applied. In the case of weavers the particulars of the rate of wages applicable to the work to be done by each weaver must be furnished to him in writing when the work is given out, and the basis and conditions by which the prices are regulated and fixed must also be exhibited in each room on a placard not containing any other matter, and posted where it is easily legible. In the case of every other worker the particulars of the rate of wages applicable must be similarly furnished when the work is given out, but if the same particulars are applicable to each of the workers in one room, it will be sufficient to exhibit them in the same manner as for the weavers. The particulars regarding either rate of wages or work are not to be expressed by means of symbols.

When an automatic indicator is used for ascertaining work it must have marked on its case the number of teeth in each wheel and the diameter of the driving roller, except that in the case of spinning machines with traversing carriages the number of spindles and the length of the stretch in such machines must be so marked instead of the diameter of the driving roller.

When such particulars of the work to be done by each worker as affect the amount of wages payable to him are ascertained by an automatic indicator and a placard containing the particulars as to the rate of wages is exhibited in each room, in pursuance of an agreement between employers and workmen and in conformity with the requirements of the act, the exhibition thereof will be a sufficient compliance therewith. The enforcement of the factory law is in the hands of factory inspectors, appointed by the Government from men elected by competitive examination.

HOW AMERICAN EXPORT TRADE MAY BE INCREASED.

Having described thus the general conditions and practices of the cotton trade in England, it may be remarked that the importance of expansion in the export of manufactured cottons, which are the greatest item in the purchases of every nonmanufacturing country, has been discussed in the American cotton trade for years. Through the class of goods dealt with in previous reports will be found the path of least resistance. A large and steady demand in widely separated markets will, if assiduously and intelligently cultivated, bring about a growth in our exports of such character as will prevent a repetition of the disastrous times which overtook our cotton industry during the Boxer outbreak in China, which were solely attributable to the fact that the bulk of our comparatively meager exports were sold in the Chinese market. In no important country where cotton goods are extensively used is there any tariff charge or regulation against us

which does not equally apply to every one of our competitors. Instead of our new mills being laid out either to make goods suitable only for our home requirements or to meet the demand in China for the restricted class of American cloths needed in that country, they might more profitably be designed to enter the foreign gray trade, which is the largest, most staple, and the most easily entered of any of the lines of cotton goods. There are two significant phases of British trade to study. It has been shown that we must learn from Manchester the accepted methods of successfully approaching the foreign buyer of cotton manufactures, and stress has been laid on the fact that, plainly, our best school is in the country which dominates the world's trade.

SAMPLES AND DETAILS OF ENGLISH COTTON PIECE GOODS.

I have collected a wide range of samples, which are at the Bureau of Manufactures, showing a representative selection of the immense variety of cloths made in the mills of Lancashire and shipped to almost every country in the world. All go to show in a practical way the general kinds of fabrics we shall have to prepare ourselves to supply before we can capture any considerable volume of the world's trade. The list is as follows:

Sample A.—Finished venetian, 32 inches wide, 60 yards, 104 sley, 80 picks, 60s 2-ply Egyptian warp, 25s Egyptian filling. Weaving piecework price, 52 cents. Price per piece in the gray, $9.72. Finishing, 4½ cents per yard. Markets, continental Europe, China, India, and South America.

Sample B.—Finished venetian, 32 inches wide, 60 yards, 104 sley, 80 picks, 60s 2-ply Egyptian warp, 50s 2-ply Egyptian filling. Piecework weaving price per piece, 52 cents. Price per piece in the gray, $10.44. Finishing, 4½ cents per yard. Markets, continental Europe, China, India, and South America.

Sample C.—Finished venetian, 32 inches wide, 60 yards, 104 sley, 80 picks, 60s 2-ply Egyptian warp, 25s Egyptian filling. Weaving piecework price, 52 cents. Price per piece in the gray, $9.72. Finishing, 4½ cents per yard. Markets, continental Europe, China, India, and South America.

Sample D.—Finished venetian, 32 inches wide, 60 yards, 104 sley, 80 picks, 60s 2-ply Egyptian warp, 50s 2-ply Egyptian filling. Piecework weaving price per piece, 52 cents. Price per piece in the gray, $10.44. Finishing, 4½ cents per yard. Markets, continental Europe, China, India, and South America.

Sample E.—Bleached stripe, 33½ inches wide, 120 yards, 112 sley, 92 picks, 40s 2-ply Egyptian warp, 50s 2-ply Egyptian filling. Weaving piecework price, $1.56. Price per piece, $14.58. Cost of bleaching, 2½ cents per yard. Markets, Germany, France, and Great Britain.

Sample F.—Checked venetian, 34 inches wide, 64 yards, 152 sley, 76 picks, 80s 2-ply Egyptian warp, 30s Egyptian filling. Weaving piecework price, 53 cents. Price per piece, $9.72. Markets, continental Europe, China, India, and South America.

Sample G.—Gray stripe, 32 inches wide, 110 yards, 92 sley, 100 picks, 40s 3-ply Egyptian warp, 30s American and 80s Egyptian filling. Weaving piecework price, $1.47. Price per piece, $11.65. Markets, Great Britain and continental Europe.

Sample H.—Brocade, 31 inches wide, 120 yards, 104 sley, 120 picks, 40s 2-ply Egyptian warp, 40s 2-ply American filling. Weaving piecework price, $1.50. Price per piece, $11.41. These goods are usually dyed, and in the lightest shades are bleached before dyeing. Markets, almost every civilized country.

Sample I.—Brocade, 31 inches wide, 120 yards, 104 sley, 120 picks, 40s 2-ply Egyptian warp, 40s 2-ply American filling. Weaving piecework price, $1.50. Price per piece, $11.41. These goods are usually dyed and in the lightest shades are bleached before dyeing. Markets, almost every civilized country.

Sample J.—Stripe for bleaching, 32 inches wide, 110 yards, 92 sley, 100 picks, 50s 3-ply Egyptian, 36s American warp, 80s 2-ply Egyptian filling. Weaving piecework price, $1.49. Price per piece, $11.17. Markets, England, continental Europe, and South America.

Sample K.—Checked venetian, 34 inches wide, 68 yards, 152 sley, 72 picks, 80s 2-ply Egyptian warp, 30s American filling. Weaving piecework price, 51 cents. Price per piece, $9.12. Markets, continental Europe, China, India, and South America.

Sample L.—Poplin, 34 inches wide, 60 yards long, 192 sley, 56 picks, 80s 2-ply combed Egyptian warp, 25s Egyptian filling. Weaving piecework price, 54 cents. Price per piece, $10.32. These goods are made to be dyed in different colors. Markets, Great Britain, Europe, and the United States.

Sample M.—A gray stripe, 32 inches wide, 110 yards long, 92 sley, 104 picks, 40s 2-ply Egyptian warp, 70s 2-ply Egyptian filling. Weaving piecework price, $1.39. Price per piece, $11.11. Markets, Great Britain and continental Europe.

Sample F. N. 159.—Plain bleaching cloth, 37 inches wide, 75 yards "long stick," 66 sley, 66 picks, 24s warp, 22s filling, 2,450 ends, 25 per cent size in the warp. Weaving, piecework price, 46 cents. Price per piece, $5.34. Bleaching, 1 cent per yard. Markets, Egypt, Turkey, and Morocco.

Sample F. N. 89.—Colored striped bleaching cloth, 50 inches wide, 60 yards, 67 sley, 46 picks, gray warp yarn, 36s, colored warp yarn, 32s; 3,570 ends, 36s, slasher's length, 63½ yards; 1,320 ends, 32s, colored yarns (fast to bleaching colors), slasher's length, 63½ yards. Woven on ten harness from two beams. Bleaching and making up, 1 cent per yard. Markets, Egypt, Turkey, and Morocco.

Sample J. D. 2.—Fancy rep, 29 inches wide, 118 yards, 36½ inches per yard; 2,520 ends, 50s Egyptian, slasher's length, 125 yards; 256 ends, 32s, fast colors, 58 picks, 14s. Bleaching, three-fourths cent per yard. Market, principally China.

Sample S. 52.—Plain check for bleaching, 31 inches wide, 120 yards, 55 sley, 60 picks, 2,290 ends, 50s Egyptian warp, slasher's length, 126 yards. This cloth can be made in a plain loom, and is sometimes used as a print cloth. Markets, China, the Levant, Java, India, Singapore, and Africa.

Sample D. J. 1.—A striped cloth for dyeing, 45 inches wide, 40 yards long, 1,940 ends, 22s, slasher's length, 41½ yards, 86 picks, 24s. Woven on four harness. This cloth can be made in a plain loom. Dyeing and making up, 1½ to 3½ cents per yard. Markets, Great Britain, continental Europe, and India.

Sample A. M. 1.—A rep for dyeing and bleaching, 28½ inches wide, 116 yards long, 36½ inches to the yard; 1,260 ends, 36s, slasher's length, 121 yards; 1,180 ends, 36s, slasher's length, 152 yards; 44 picks, 22s. Woven on four harness from two beams. Bleaching, three-fourths cent per yard. Dyeing, 1¼ to 1½ cents per yard. Markets, Great Britain and China.

Sample N. S. 61.—A Leno vein, 52 inches wide, 120 yards, 4,420 ends, 36s superior American cotton, slasher's length, 127½ yards, 40 picks of 54s filling. Woven with one doup. Bleaching, 1 cent per yard. Dyeing, 1½ cents per yard. Markets, Great Britain, Persia, Turkey, continental Europe, and Egypt.

Sample D. R. 32.—Fancy dobby cloth, 42 inches wide, 116 yards, 3,100 ends, 36s, slasher's length, 122¼ yards, 60 picks of 24s filling, 68 sley. Woven on sixteen harness. Markets, Oriental, British, continental Europe, and United States.

Sample H. D. 35.—Special fancy Jacquard cloth, 52 inches wide, 125 yards long; 5,040 ends 36s, slasher's length, 122¼ yards; 72 ends, 32s 12-ply, slasher's length, 136 yards; 144 ends, 24s 2-ply, slasher's length, 150 yards; 66 picks, 82s Egyptian, 106

sley. Woven with one doup. Bleaching and making up, 1¼ cents per yard. Markets, British, continental Europe, and China.

Sample J. S. 3.—A figured dobby cloth, 31 inches wide, 125 yards, 3,010 ends, 50s, slasher's length, 134 yards, 118 picks, 42s, 90 sley. Weaving price, $1.96 per piece. Woven on twelve harness. Dyeing and making up, 1½ cents per yard. Markets, mostly Great Britain and China.

Sample X. X. 5.—Figured mercerized rep, woven in a dobby loom to imitate Jacquard work, 30 inches wide, 58 yards long, 36½ inches to a yard; 1,280 ends, 50s Egyptian, slasher's length, 60½ yards; 1,210 ends, 40s 2-ply mercerized, slasher's length, 69 yards; 60 picks, 34s filling, 78 sley. Woven on eighteen harness from two beams. Dyeing and making up, from 1¾ to 2 cents per yard. Markets, British, United States, South America, and continental Europe.

Sample N. C. 10.—Figured mercerized rep, woven in a dobby loom to imitate Jacquard work, 30 inches wide, 58 yards long, 36½ inches to a yard; 1,280 ends, 50s Egyptian, slasher's length, 60½ yards; 1,210 ends, 40s 2-ply mercerized, slasher's length, 69 yards; 60 picks, 34s filling, 78 sley. Woven on fourteen harness from two beams. Dyeing and making up, 1¾ to 2 cents per yard. Markets, British, United States, South America, and continental Europe.

Sample 774a.—Fancy mercerized shirting, 31 inches wide, 66 yards; 856 ends, 20s, slasher's length, 62½ yards; 826 ends, 18s, slasher's length, 90 yards; 656 ends, 40s 2-ply mercerized; 40 picks, 20s filling. Woven with one doup. Bleaching and making up, 1 to 1¼ cents per yard. Markets, Great Britain, continental Europe, and China.

Sample S. 56.—A special "split" coating, 50 inches wide, 50 yards long, 3,830 ends, 36s, slasher's length, 52¾ yards, 60 picks, 18s filling, 72 sley. Woven on ten harness. Dyeing and making up, 1¾ cents per yard. Markets, Great Britain and continental Europe.

Sample N. C. 1.—A fancy rep, 52 inches wide, 103½ yards; 1,940 ends, 36s, slasher's length, 109 yards; 7,080 ends, 36s, slasher's length, 140 yards; 38 picks, 14s. Woven on eight harness from two beams. Dyeing and making up, 2 cents per yard. Markets, British, United States, continental Europe, and China.

Sample N. C. 7.—Brocade for dyeing, 29 inches wide, 87 yards with 36½ inches to the yard; 1,220 ends, 50s, slasher's length, 91¼ yards; 1,160 ends, 40s 2-ply mercerized, slasher's length, 107 yards; 82 picks, 24s filling, 78 sley. Woven on a Jacquard loom from two beams. Dyeing and making up, 1½ cents per yard. Markets, British, United States, France, and China.

Sample F. 62.—A Leno weave (split), 50 inches wide, 60 yards long; 2,880 ends, 36s, slasher's length, 63 yards; 320 ends, 24s 2-ply, slasher's length, 80 yards; 130 picks of 42s. Woven with two doups. Weaving price, 61 cents per piece. Bleaching and making up, 1½ cents per yard. Price per piece in the gray, $3.58. Markets, British, continental Europe, Egypt, and India.

Sample A. B. 54 X.—A sateen check for printing (split), 50 inches wide, 150 yards long; 2,680 ends, 36s, slasher's length, 155 yards; average pick, 140 per inch; 42s filling. Woven on ten harness. Printing and making up, 1½ cents per yard. Weaving price, 90 cents per piece. Selling price in the gray, $7.55 per piece. Markets, Bagdad, Persia, Morocco, and Turkey.

Sample 774.—A mercerized canvas for bleaching, 31 inches wide, 60 yards; 880 ends, 20s, slasher's length, 62½ yards; 840 ends, 18s, slasher's length, 90 yards; 660 ends, 40s 2-ply mercerized, slasher's length, 62½ yards; 147 picks, 20s. Woven with one doup. Price for bleaching, 1 cent per yard. Price per piece in the gray, $4.86. Markets, British and continental Europe.

Sample N. S. 117.—Colored striped drills for bleaching, the colored yarn in the piece being dyed to stand the bleaching process, 28 inches wide, 116 yards long, 2,340 ends, 36s, slasher's length, 123½ yards; 480 ends of 31 yards colored yarn, slasher's

length same; 56 picks, 28s. Woven on three harness. Weaving price, 76 cents per piece. Price per piece in the gray, $6.80. Bleaching and making up, 1¼ cents. Markets, British, China, and South America.

Sample A. B. 23a.—Sateen (with tinted warp), 31½ inches wide, 166 yards, 2,280 ends of 36s, slasher's length, 121 yards, 123 picks, 42s Egyptian. Woven on five harness. Dyeing, 1¾ to 2¼ cents per yard. Markets, British, Chinese, and continental Europe.

Sample F. L. 1.—A jean for bleaching, 46 inches wide, 116 yards, 3,460 ends, 36s, slasher's length, 120 yards, 38 picks, 44s, woven on six harness, 47 sley, 3 ends in a dent. Bleaching, one-half cent per yard. Markets, Java, India, and West Africa.

Sample N. E. 48.—Leno vein (split; tinted warp), 51 inches wide, 60 yards, 4,180 ends, 36s, slasher's length, 64½ yards, 43 picks of 54s. Woven with one doup. Weaving piecework price, 54 cents per piece. Price per piece in the gray, $4.86. Bleaching, 1½ cents per yard. Markets, Java, India, China, Egypt, the Levant, and British.

Sample N. E. 56.—Block Leno (split), 49 inches wide, 60 yards, 2,280 ends, 36s, slasher's length, 63 yards, 30 picks of 42s. Woven on two doups. Piecework weaving price, 33 cents. Price per piece in the gray, $2.70. Bleaching, three-fourths cent per yard. Dyeing, 1 cent per yard. Markets, Egypt, Persia, Bagdad, Turkey, and Morocco.

Sample F. 90.—Stripes (split), 53½ inches wide, 116 yards, 4,700 ends, 50s, slasher's length, 123½ yards, 76 picks, 38s. Woven on fourteen harness. Dyeing, 1¾ cents per yard. Markets, China and Java.

Sample D. R. 39.—Stripes (split), 42 inches wide, 116 yards, 4,400 ends of 42s Egyptian, 40 picks, 18s American. Woven on ten harness. Dyeing, 1½ cents per yard. Markets, China and Egypt.

Sample A. B. 54.—Brocade (tinted warp), woven on Jacquard loom, 31 inches wide, 125 yards, 3,160 ends, 36s, slasher's length, 132½ yards, 116 picks, 42s. Piecework weaving price, $1.96. Price per piece in the gray, $13.95. Dyeing, shrinning, and making up, 2½ cents per yard. Markets, the smaller designs, British and continental Europe; larger designs or figures, China, Egypt, Turkey, and Africa.

Sample F. Y. 5.—Brocade, Jacquard weave (tinted warp), 32 inches wide, 90 yards, 36½ inches to the yard, 2,580 ends, 36s, slasher's length, 95½ yards, 140 picks, 42s. Dyeing, shrinning, and making up, 2 to 2½ cents per yard. Market, China. (Key pattern.)

Sample F. 73.—A bordered umbrella cloth, 3,300 ends, 50s, slasher's length, 94 yards; 600 ends, 36s, 142 picks, 34s Egyptian. Woven on ten harness. For dyeing black, shrinning, and making up, 2¼ cents per yard. Market, Japan. Used for covering umbrellas and sunshades.

Sample H. D. 97.—A mercerized stripe (split), 50 inches wide, 116 yards, 36½ inches to the yard; 3,640 ends of 50s Egyptian, slasher's length, 122 yards; 660 ends, 40s 2-ply mercerized, slasher's length, 123 yards; 62 picks, 42s, 80 sley. Woven from two beams. Bleaching and making up, 1 cent per yard. Markets, British and continental Europe.

Sample K. O. 9.—Plain bleaching cloth, 33 inches wide, 103 yards "long stick" or 37 inches to the yard; 2,270 ends, 30s, slasher's length, 122 yards or 10.1 pounds; 70 picks, 22s filling or 14.1 pounds; 22 per cent size in the warp or 2.2 pounds. Weaving price, 68 cents per piece. Price per piece in the gray, $6.10. Bleaching and making up, 1 cent per yard. Markets, Egypt, Persian Gulf, Bagdad, Morocco, and Turkey.

Sample K. O. 8.—Plain bleaching cloth, 35 inches wide, 112 yards with 36½ inches to the yard, 2,100 ends, 24s, slasher's length, 121 yards, 58 picks, 22s. Piecework weaving price, 60 cents per piece. Price per piece in the gray, $6.32. Bleaching and making up, 1 cent per yard. Markets, Egypt, Persian Gulf, Bagdad, Morocco, and Turkey.

Sample A. B. 58.—Plain bleaching cloth, 36 inches wide, 76 yards with 36½ inches *to the yard, 2,330 ends,* 24s, slasher's length, 84 yards or 9.6 pounds; 25 per cent size *on the warp or 2.4 pounds;* 66 sley. Price per piece in the gray, $4.98. Finishing and

making up, 1 cent per yard. Markets, Egypt, Persian Gulf, Bagdad, Morocco, and Turkey.

Sample H. G. 21.—Plain printing cloth, 37½ inches wide, 76 yards with 36½ inches to the yard, 2,750 ends. 34s, 86 picks, 36s; spun "warp way" or right-hand twist; 25 per cent size, 74 sley. Price per piece in the gray, $4.68. Printing price, 1½ to 2½ cents per yard, including making up. Markets, China, Africa, Egypt, and continental Europe. This construction of cloth is sold in all the above markets, but the printed designs for various countries differ.

Sample H. G. 18b.—Plain bleaching cloth or shirting, 38 inches wide, 78 yards with 36½ inches to the yard, 2,870 ends, 32s, 78 picks, 30s, 10 per cent size on the warp, 74 sley. Piecework weaving price, 57 cents per piece. Price per piece in the gray, $4.68. This is shipped principally to China, Egypt, and continental Europe, and is also sent in the gray to Bagdad, Persian Gulf, Arabia, and Egypt. Packing houses charge one-half cent per yard for making up and packing these gray goods.

Sample X. X. 1.—A print cloth, 33 inches wide, 100 yards, sley and pick, 72 by 64, 32s warp, 34s filling. Price per piece in the gray, $4.76. Printing and finishing this design, 2 cents per yard. Merchants' and shippers' selling price, 8 cents per yard. Markets, British, China, and South America.

Sample X. X. 2.—A twill waste cloth printed and napped, known to the trade as "Ancona," 35 inches wide, 100 yards long, sley and pick, 46 by 40, warp 36s, filling 8s. Price per piece in the gray, $6.92. Printing and making up, 2½ cents per yard. Sold by merchants and shippers at 11 cents per yard. Market, mostly China. This piece of goods is napped on both sides and printed. The filling is made from waste cotton.

Sample X. X. 3.—A plain waste cloth napped on both sides and printed, known to the trade as "Ancona," 37 inches wide, 100 yards long, sley and pick, 54 by 40, warp 36s, filling 10s. Price per piece in the gray, $5.46. Printing, finishing, and making up, 2½ cents per yard. Merchants' and shippers' selling price, 10¾ cents per yard. Market, mostly China.

Sample X. X. 4.—A black satin, dyed, shrinned, and finished, 30 inches wide, 100 yards long, sley and pick, 76 by 104, warp 36s American, filling 36s American. Price per piece in the gray, $6.08. Finishing, 1½ cents per yard. Merchants' and shippers' selling price, 9 cents per yard. Markets, British and Chinese. The gloss on this fabric is obtained by the shrinning process.

Sample X. X. 6.—A stiffened lining (splits), 52 inches wide, 100 yards long, sley and pick, 60 by 60. Price per yard, finishing single width, three-fourths cent. Merchants' and shippers' selling price, single width, 5 cents per yard. Markets, British, continental Europe, Persia, Morocco, and Egypt.

Sample X. X. 7.—A plain bleaching cloth, known to the trade as "Wigans," 36 inches wide, 100 yards to the piece, sley and pick, 48 by 28, 14s warp, and 14s filling (waste yarns). Price per piece in the gray, 25 cents per inch of width. Bleaching and making up, 1½ cents per yard. Merchants' and shippers' selling price, 14 cents per yard. Markets, India, Morocco, Java, Singapore, and Turkey.

Sample X. X. 8.—Plain dhootie with plain wide border, 45 inches wide, 40 yards, or eight 5-yard scarves, sley and pick, 52 by 56; gray warp 24s, gray filling 26s; colored warp and filling 20s; containing 20 per cent size in the warp. Gray price, $2.90 per piece. Stiffening and making up, 4 cents per scarf. Merchants' and shippers' price, 46 cents per scarf. Markets, India and contiguous territories and West Africa. The stiffening is done after weaving. The narrow gray stripes in the border are obtained by cramming several ends in one dent.

Sample X. X. 9.—A dhootie with figured dobby-woven borders, 45 inches wide, 40 yards, sley and pick, 56 by 50 (5-yard scarves), gray yarns 24s warp and 34s filling; colored yarns 72 ends of 40s 2-ply; 10 per cent size in the warp. Price per piece in the gray, $2.55. Stiffening and making up, 4 cents per scarf. Merchants' and ship-

pers' price, about 45 cents per scarf. Markets, British, India, and near-by countries. Of late years some trade has been developed in West Africa for goods of this character.

Sample X. X. 10.—Coarse bleaching cloth, 37 inches wide, 100 yards, sley and pick 58 by 62, warp 20s, filling 10s; 30 per cent size in warp. Price per piece in the gray, $9.85. Bleaching, 1¼ cents per yard. Merchants' and shippers' selling price, 12 cents per yard. Markets, China, Persian Gulf, Bagdad, Morocco, and Turkey. Goods of the same construction and quality as these are made for the British India market in 31-inch widths.

Sample X. X. 11.—A dhootie with plain woven colored border, 45 inches wide, 40 yards long, 8 scarves of 5 yards each to the piece, sley and pick 56 by 68; gray yarns 30s warp, 54s filling, 180 ends of 20s colored yarn. Stiffening and making up, 4 cents per scarf. Merchants' and shippers' selling price, 42 cents per scarf. Markets, British, India, and Africa.

Sample X. X. 12.—Dhooty with fancy dobby-woven sides, 44 inches wide, 40 yards to the piece, or eight scarves of 5 yards each to the piece, sley and pick 64 by 60; gray yarns warp 36s, filling 42s; bleached yarns, 68 ends of 30s; colored yarns, 248 ends of 40s 2-ply; 10 per cent size in the warp. These goods are woven on sixteen harness. Price per piece in the gray, $2.63, or 33 cents per scarf. Markets, India and near-by countries.

Sample X. X. 13.—A dhootie with fancy dobby woven sides, 44 inches wide, 42 yards, or fourteen 3-yard scarves per piece, sley and pick 60 by 56; gray yarns 36s warp, 42s filling; colored yarns, 60 ends 40s 2-ply; 10 per cent size in warp. Woven on ten harness. Price per piece in the gray, $2.25, or 16 cents per scarf. Markets, India and near-by countries.

Sample N. S. 24.—Mercerized stripes (split), 52 inches wide, 120 yards, sley and pick 78 by 66; 3,720 ends 50s warp; slasher's length, 125½ yards; 940 ends 40s 2-ply mercerized, slasher's length, 128 yards. Woven on twelve harness. Price per piece in the gray, $11.80. For dyeing in various colors. Market, China.

Sample H. B. 7.—Cellular cloth (shirting), 33 inches wide, 80 yards long; 1,000 ends 22s, slasher's length, 83 yards; 510 ends 24s 2-ply, slasher's length, 118 yards; 57 picks, 22s filling. Weaving piecework price, 70 cents. Price per piece in the gray, $5.96. Woven with one doup. Markets, British, continental Europe, and United States.

Sample N. R. 20.—Striped cellular (shirting), 32½ inches wide, 70 yards, sley and pick 52 by 18; 740 ends 24s 2-ply, slasher's length, 83 yards; 380 ends 24s 2-ply, slasher's length, 126 yards; picks per inch, 18. Woven with one doup. Price per piece, $5.48. Markets, principally British, European, South America, and China.

Sample H. B. 13.—Cellular shirting, 33 inches wide, 80 yards, sley and pick 56 by 43; 540 ends 20s 2-ply, slasher's length, 82 yards; 510 ends 20s 2-ply, slasher's length, 110 yards; 43 picks, 16s filling. Woven with one doup. Price per piece in the gray, $5.16. Markets, British, South America, and China.

Sample H. B. 20.—Mercerized stripe for bleaching, 30 inches wide, 80 yards long, sley and pick 92 by 54; section warp, to be "split" into four pieces, each of different design; 2,520 ends 50s, slasher's length, 87½ yards; 460 ends, 40s 2-ply mercerized, slasher's length, 88½ yards; 54 picks, 18s filling. Woven on eight harness. Weaving piecework price, 54 cents. Price per piece in the gray, $6.26. Markets, mostly British and continental Europe.

Sample A. B. 43.—Satin stripe for dyeing (split), 52 inches wide, 116 yards long, 36½ inches to the yard, sley and pick 74 by 58; 5,160 ends 36s, slasher's length, 124 yards; 58 picks, 26s filling. Woven on twelve harness. Weaving piecework price, $1.14. Price per piece in the gray, $10.05. Markets, Egypt and Turkey.

Sample J. Y. 3.—Check for printing, 34 inches wide, 125 yards, 36½ inches to the yard, sley and pick 62 by 72; 2,940 ends 50s, slasher's length, 130 yards; 54 ground pick, average pick 72 of 82s Egyptian. Woven on eight harness. Price per piece *in the gray, $10.15. Market,* West Africa.

Sample A. O. 2.—Matting cloth, sley and pick 68 by 42, 20s gray warp and 16s filling; colored stripes, 20s warp. Markets, Great Britain and continental Europe.

STANDARD AMERICAN CLOTHS.

By a comparison of the detailed descriptions of export cotton fabrics embraced in this and my previous reports with the subjoined particulars of a number of the standard cloths made in the United States the trade can readily determine how near the more common of the products of our cotton mills approach the construction details of piece goods, for which an established demand exists abroad:

Width.	Sley and pick.	Yards per pound.	Width.	Sley and pick.	Yards per pound.	Width.	Sley and pick.	Yards per pound.
Sheetings.			*Tobacco cloths*—Continued.			*Filling sateens*—Continued.		
36 inches	48/48	3.00						
36 inches	48/44	3.25	36 inches	28/24	.....	36 inches	64/88	4.85
36 inches	40/40	3.50	36 inches	26/22	.....	36 inches	64/80	5.10
36 inches	48/52	4.00	36 inches	24/20	.....	33½ inches	96/150	5.50
36 inches	48/48	4.00	36 inches	22/18	.....	31½ inches	64/124	5.50
36 inches	56/60	4.00	36 inches	20/16	.....	31½ inches	64/88	5.50
36 inches	48/52	4.00	36 inches	20/14	.....	28 inches	64/88	5.85
36 inches	56/48	4.50	36 inches	20/12	.....			
36 inches	48/44	4.50				*Three-leaf twills.*		
36 inches	44/44	6.15	*Plain wide goods.*					
36 inches	40/40	6.00						
36 inches	44/40	6.50				43 inches	80/92	3.25
36 inches	56/60	4.00	44 inches	64/64	4.50	43 inches	80/84	3.50
40 inches	56/60	3.60	44 inches	56/60	5.25	43 inches	80/76	4.00
38½ inches	56/60	3.85	44 inches	60/56	5.25	43 inches	68/76	3.55
40 inches	48/48	2.50	43 inches	56/52	5.60	43 inches	68/76	4.00
40 inches	48/48	2.70	44 inches	48/48	6.40	43 inches	68/60	4.30
40 inches	48/48	2.85	44 inches	40/44	7.25	43 inches	68/52	4.75
40 inches	44/44	2.85	39 inches	90/100	5.00	39 inches	80/92	3.65
40 inches	48/48	3.60	39 inches	88/92	5.00	39 inches	80/84	3.75
40 inches	48/44	3.75	39 inches	80/88	5.00	39 inches	80/80	3.90
40 inches	44/44	5.00	39 inches	80/80	5.00	39 inches	68/76	4.00
			39 inches	80/84	3.90	39 inches	68/76	4.50
Narrow print cloths.			39 inches	80/80	4.00	39 inches	64/72	4.80
			39 inches	72/80	4.10	39 inches	64/64	5.10
			39 inches	72/80	4.50	39 inches	64/56	5.25
28 inches	64/64	7.00	39 inches	72/76	4.25	39 inches	64/48	6.00
28 inches	64/60	7.30	39 inches	68/72	4.75	36 inches	60/80	4.25
27 inches	64/60	7.60	40 inches	64/64	5.00			
28 inches	64/56	7.35	38½ inches	64/64	5.15	*Drills.*		
27 inches	56/60	8.70	38½ inches	64/60	5.35			
27 inches	56/52	9.00	38½ inches	64/56	5.50	37 inches	.....	2.65
27 inches	56/44	9.75	38½ inches	60/52	6.00	37 inches	.....	3.00
25 inches	56/44	10.55	38½ inches	60/48	6.25	37 inches	.....	3.25
25 inches	48/36	12.60	40 inches	56/44	6.60	37 inches	.....	3.50
25 inches	44/36	13.25	39 inches	56/44	6.60	37 inches	.....	3.95
25 inches	40/36	14.00	38½ inches	52/40	7.30	30 inches	.....	2.50
32 inches	64/64	6.12	38 inches	48/48	7.15	30 inches	.....	2.85
32 inches	64/60	6.50	38½ inches	44/44	7.65	30 inches	.....	3.00
31½ inches	56/52	7.60	38½ inches	44/40	8.20	30 inches	.....	3.25
28 inches	40/44	9.15	39½ inches	56/52	6.70	30 inches	.....	4.00
27 inches	44/44	9.50	35 inches	68/72	5.00			
27 inches	32/28	.....	34 inches	64/64	5.75	*Warp sateens.*		
30 inches	20/14	.....	34 inches	64/60	6.00			
34 inches	44/40	6.00				43 inches	160/96	3.35
32 inches	44/40	6.25	*Filling sateens.*			43 inches	140/96	3.35
						42 inches	140/84	3.50
Tobacco cloths.			43 inches	96/150	3.35	43 inches	120/96	3.50
			43 inches	96/132	3.35	43 inches	120/84	3.50
36 inches	48/44	7.75	43 inches	84/124	3.35	43 inches	112/64	3.50
36 inches	44/44	8.10	44 inches	64/112	3.75	43 inches	96/54	3.75
36 inches	48/40	8.10	44 inches	64/104	4.00			
36 inches	44/40	8.50	39 inches	96/132	3.75	*Alberts.*		
36 inches	40/40	9.20	39 inches	84/124	3.75			
36 inches	44/36	9.20	39 inches	64/112	3.75	36 inches	96/132	4.25
36 inches	40/36	9.65	39 inches	64/112	4.00	36 inches	72/112	4.40
36 inches	40/32	10.20	39 inches	64/104	4.20	36 inches	80/112	4.40
36 inches	36/32	10.50	39 inches	64/88	4.50	36 inches	76/84	4 [illegible]
36 inches	36/32	11.20	35 inches	84/120	4.20	36 inches	76/80	4
36 inches	32/28	12.00	36 inches	64/112	4.50	36 inches	76/68	5
36 inches	32/28	13.00	35 inches	64/112	4.65	36 inches	76/56	5
36 inches	32/24	13.50	36 inches	64/104	4.50			

GENERAL TRADE CONDITIONS.

OTHER OPPORTUNITIES FOR AMERICAN MANUFACTURERS.

There is yet another side of international trading to which many American manufacturers of wares other than those made from cotton should turn their attention. It has been made known in reports already submitted that American wood workers might increase their trade by catering to the yearly demand for the millions of wooden clog soles used by the artisan classes of the north of England, and that to achieve a prosperous issue in any invasion of England's enormous trade in household and office furniture our manufacturers in those lines must not only meet competition in prices, but must also supply the styles and designs which are fashionable and pay attention to the details of finish and stability, which suit the idiosyncrasies of the British purchaser. It has also been pointed out that clog nails, irons, and clasps are articles as yet unnoticed by our metal manufacturers, and that the leather tops are worth the attention of our leather dealers.

MEATS AND CANNED GOODS.

Other articles which we can profitably exploit are bacon and cheese. For years Great Britain has consumed enormous quantities of bacon. It may with truth be called the staple breakfast meat. Although the home production is very large, the country imported last year approximately 300,000 tons of bacon, valued at $65,000,000. About one-fourth of this quantity came from Denmark. This latter is excellent meat, and its quality is due to the fact that some years ago the Danish Government purchased large numbers of the best breeds of hogs from England. Canada is also supplying Britain with bacon in steadily increasing volume. To arrive at what will best suit the British demand a scrutiny of the breeds, weights, and cuts most common in England must be taken. Investigations show that the three principal breeds of hogs in England are the white Yorkshires, the black Berkshires, and the red Tamworths. The most popular weight ranges from 140 to 196 pounds. The best selling cut is what is known as the "Wiltshire." Fuller particulars of this trade are furnished in

the report published on December 3, 1906, in Daily Consular and Trade Reports.

A strong prejudice arose in the United Kingdom against every kind of canned goods following the American scare on this question, the consequence being that the consumption of cheese went up by leaps and bounds. Canada increased her trade with England in this commodity very materially, but as yet the United States has not taken advantage of the opening.

OPENING FOR JEWELRY.

Cheap jewelry is sold in large quantities to the women of the laboring classes in the United Kingdom, and this variety of ornament is steadily growing in favor. That the American manufacturer participates in this trade but insignificantly is demonstrated by the $356,976 worth which represents the exports of jewelry of all kinds from the United States to the whole of Europe during the year 1905. In every industrial center one is struck with the glitter of the ornaments made from paste, alloy, lightly put together silver, or gold of low carat worn by working women and girls. Other kinds are gilded, plated, or rolled baser metals. Information obtained from retailers leads to the conclusion that a good share of this trade in cheaper articles would be quickly in the hands of American makers if an aggressive selling campaign were inaugurated. This opinion is strengthened by the record of our sales of jewelry goods to the 5,600,000 residents of Canada in the fiscal year 1906, amounting to $979,492. In the British Isles the sales of such wares for the same period amounted to $291,095.

Attention has been directed also to the importations into the United States of artificial silk, jute bagging, and burlaps, and the fact is pointed out that these yarns and fabrics can be profitably manufactured here and two new American industries established.

BRITISH IMPORTS OF MANUFACTURES.

There are few industries in this country which could not increase their trade with Great Britain if an active selling campaign were inaugurated. There we have a market supported by nearly 44,000,000 people who bought manufactures from other countries to the value of $1,345,000,000 during 1905, a free market without import tariffs, and with almost daily ocean carriers sailing from the United States, as well as low freight rates and quick service. Nor have we the difficulty of a strange language to contend with. There are many examples of the gratifying success that will attend proper efforts in this direction, for on every hand American-made goods of certain kinds are in evidence.

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60TH CONGRESS, 1st Session } SENATE { DOCUMENT No. 81

COTTON FABRICS

IN

BRITISH INDIA AND THE PHILIPPINES

By

W. A. GRAHAM CLARK

Special Agent of the Department of Commerce and Labor

DECEMBER 9, 1907

Referred to the Committee on Commerce and ordered to be printed

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DEPARTMENT OF COMMERCE AND LABOR,
OFFICE OF THE SECRETARY,
Washington, December 5, 1907.

SIR: I have the honor to transmit herewith report of Special Agent W. A. Graham Clark on cotton fabrics in British India and the Philippines, in compliance with the act making appropriations for the legislative, executive, and judicial expenses of the Government for the fiscal year ended June 30, 1907, approved June 22, 1906, which directs that results of investigations by special agents to inquire into trade conditions abroad shall be communicated to Congress.

Respectfully,

OSCAR S. STRAUS, *Secretary.*

The PRESIDENT OF THE SENATE.

NOTICE TO MANUFACTURERS.

Many samples of cotton cloths of almost every description were collected by the special agents of the Department of Commerce and Labor in the countries visited by them and are now in possession of the Bureau of Manufactures. These samples represent the fabrics in use by the people for clothing and household purposes, and are accompanied by full data explaining countries from which exported, size and quality of fabrics, peculiarities of manufacture and packing, popularity of patterns, wholesale and retail prices, etc. In addition to cloths, the Bureau of Manufactures is in possession of samples of yarns, braids, towels, handkerchiefs, laces, etc. Collections were made in Africa, Australia, Brazil, China, England, India, Italy, Japan, and Turkey. The samples will be loaned to manufacturers who may apply for them. Applications should state country in which interested and class of samples desired.

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LETTER OF SUBMITTAL.

BOMBAY, INDIA, *May 1, 1907.*

SIR: I have the honor to transmit herewith a report covering my investigation of trade conditions in regard to cotton products in the Philippine Islands and also on the cotton industry of the Indian Empire.

For a long while cotton textiles have been the largest single import of the Philippines, excepting only rice. The import of rice is simply a temporary matter until agriculture revives and the islands are again able to feed themselves. There is no possibility of their being able to clothe themselves, and the textile trade is an expanding one, well worth the attention of American manufacturers. The trade is not only worth going after for its own sake, but once thoroughly intrenched in the Philippines American manufacturers will have a base from which to attempt the larger trade of Asia itself.

The American textile trade in the Philippines was hampered under the tariff of 1905 by a discrimination which was corrected by Congress in February, 1906. This explains why the American sales dropped from $764,990 in the fiscal year 1905 to $278,890 in the fiscal year 1906, while exports of cotton textiles from the United Kingdom to the Philippines during the fiscal year 1906 were valued at over $3,000,000. The recovery in the American trade which began in June last year has continued, so that for the calendar year 1906 the shipments of cotton manufactures from the United States to the Philippines amounted to $572,268.

It is desirable to have it known that India is both a great cotton-producing and a great cotton-manufacturing country. It is also worthy of note that hand looms still enter very largely into the industry, and that yarns are the chief manufactured product which is exported, cloths being imported in very large quantities from Great Britain. The United States hitherto has made practically no effort to enter this valuable market, the heavy cloths manufactured for the Far East not being in demand in India. But since the United States is

now beginning to compete with Great Britain in the manufacture of light cloths there is no reason why we should not have a share of this choice Indian market.

I submit suggestions regarding prominent agents and other means by which the introduction of American cotton manufactures into the Philippines and India may be secured.

Respectfully,

W. A. GRAHAM CLARK,
Special Agent of the Department of Commerce and Labor.

To Hon. OSCAR S. STRAUS,
Secretary of Commerce and Labor.

THE COTTON INDUSTRY IN BRITISH INDIA.

INTRODUCTION.

The results of exhaustive investigation of the cotton industry in the Indian Empire, and also of India as a market for cottons, are set forth in a series of reports by Special Agent W. A. Graham Clark.

In reviewing production and manufactures the special agent notes that while, after the United States, India is the greatest cotton-producing country in the world, the fact is not so well known that it is also one of the great cotton-manufacturing countries, not only manufacturing a much larger proportion of its cotton crop than does the United States, but actually exporting more pounds of cotton in the manufactured form. According to the latest statistics India has 217 cotton mills, with 5,279,595 spindles and 52,668 looms. The total capital stock of the mills is approximately $55,000,000. Though the industry has suffered many vicissitudes, it has gradually progressed till a profitable basis has been reached. The tendency is for yarn mills to add looms, because the cloth market, being farther removed from the raw material, is more stable than the yarn market. China is the chief buyer.

While on yarns the Indian mills have a substantial monopoly for home consumption, on cloth the conditions are reversed, the English mills controlling this trade. The cloths imported into India in largest quantities are shirtings, dhooties, saris, and scarves. The total import of piece goods for 1906 amounted to 2,463,232,479 yards, of the value of $119,729,342. Of these piece goods 1,348,836,146 yards were of gray cloth, 572,749,710 yards of white, and 541,646,623 yards colored, printed, or dyed. The value of the cloth imported from Great Britain was $115,223,931. The piece goods produced by the Indian mills are shirtings and long cloths, dhooties and chadars, T-cloths, domestics, and sheetings.

An interesting description of a typical Indian yarn mill is given by the special agent, which serves to explain the buildings used, the machinery employed, and the relation of the operatives to the industry. Men and boys do all the spinning, while reeling is the only work in most Indian mills that is considered to belong to women. The wages, according to the American standard, would be considered very low.

In the methods of dyeing, the poverty of the natives and their manner of living have to be taken into account. The desire for variety is satisfied by dyeing the same garment over and over, a different color being used each time. Aniline dyes are supplanting the vegetable dyes, and the importation of mineral dyes is increasing, the value now being about $2,500,000 annually. Preference in colors varies according to locality, and importers pay special attention to these peculiarities. While the native dyers like foreign dyes that are not too fast, nevertheless all foreign dyed or printed goods must be fast in order to obtain a permanent market. In producing patterns some of the methods of the dyer and calico printer are very primitive, and a few are exceedingly ingenious.

In India, even more than in Japan and China, the hand loom flourishes. The last census showed 2,700,000 hand-loom weavers, while the power looms numbered only 52,668. Out of 4¾ billion yards of cloth used in India in 1906 the hand looms produced 34 per cent, and in some years the product amounts to 40 per cent. Cloth made by the cheap labor on the hand loom is more expensive per yard than cloth made by higher-priced labor on the power loom, and if it were not for the power loom many thousands of the natives who are now decently clothed would be in rags. Nevertheless, though the hand loom is giving way to machinery, many years must pass before it takes second place. A large amount of the hand-woven cloth is household manufacture for the use of the weaver and his family. The possibility of improving the hand loom is attracting attention. Its importance can be understood from the statement that more than 6,000,000 people depend on it for their living, and over 100,000,000 inhabitants, or one-third of the total population, are clothed by it.

There is practically no American textile machinery in India, England having an absolute monopoly. It is the belief of Mr. Clark that the sale of American machinery while difficult is not impossible. More mills are seeking to produce finer goods and are installing finishing processes, and in this line American machines have been shown to be more efficient than the English machines, for some of which the same patterns are employed that were used twenty years ago.

India mill owners object strongly to the fiscal system, which compels them to pay a countervailing tax equal to the import duty on cottons. This tax is 3½ per cent ad valorem and is imposed for the protection of the Lancashire mills. The revenue from the internal tax imposed on the product of the Indian mills in 1906 amounted to $900,000. Besides the objection to the countervailing tax on Indian cotton-mill cloth being in the interest of Lancashire, the ·dian mill owners object to it because the mills in the native States pe this tax, their products entering British territory free of all tion.

In the export trade of India, as has been noted, the chief dependence is on yarns for China. In the fiscal year ending March 31, 1906, India exported cotton manufactures to the value of $46,738,000; while the exports of the United States for the fiscal year ending June 30, 1906, amounted to only $52,944,000. The manufactures sent out by India were mainly yarn, while those from the United States were cloth. The demand for both yarn and cloth in India is growing yearly, and the imports of foreign piece goods increase proportionately. Intelligent and thorough study of foreign opportunities is made by the Indian mill owners. Though the export of Indian piece goods is much smaller than that of yarns, it also is increasing. It is expected that in the future Indian mills will make a more determined effort to capture their own market on some of the medium lines. Little has been done by American mills toward entering the India market. In the province of Burma, where the importations of piece goods approximate $6,000,000 annually, the amount credited to the United States in 1906 was $930.

Reviewing the whole Indian Empire, it may be said that this is the choicest field in the world markets. The English control the trade of India because they work for it. A share in it can be captured by permanent American agents carrying a good line of manufactures. Intelligent soliciting is necessary, while various local peculiarities must be observed and respected. Pattern cards are demanded by the Indian buyer, and this is one of the minor reasons why American mills do not more actively seek this market.

The conclusion Mr. Clark reaches is that in drills, prints, shirtings, even in dhooties and saris, the United States could do a large business with India. At present the textile exports of the United States go mainly to the Far East, which takes heavy goods. In India the demand is for light goods, but the United States soon will be competing with England in fine goods and should gain a foothold in India on which to build.

BRITISH INDIA.

MANUFACTURE AND CONSUMPTION.

Next to the United States, India is the greatest cotton-producing country in the world. This is well known. It is not so well known that India is one of the great cotton-manufacturing countries, ranking sixth in the list of such countries. It is exceeded in the total number of spindles only by Great Britain, the United States, Germany, Russia, and France, and is ahead of Austria, Spain, Italy, Switzerland, and Japan. India not only manufactures a much larger proportion of her cotton crop than does the United States, but actually exports more pounds of cotton in the manufactured form. According to the latest authoritative figures obtainable, those of the Bombay Mill Owners' Association of June 30, 1906, India had at that date 217 cotton mills with 5,279,595 spindles and 52,668 looms. The figures for the last three years ended June 30 are as follows:

STATISTICS OF INDIA COTTON MILLS, 1904–1906.

Mills and equipment.	1904.	1905.	1906.
Total number of mills	191	197	217
Mills with spindles	188	193	209
Mills with spindles and looms	85	88	100
Mills with looms only	3	4	8
Number of mule spindles	2,038,157	1,978,632	1,915,649
Number of ring spindles	3,079,964	3,184,854	3,363,946
Total number of spindles	5,118,121	5,163,486	5,279,595
Total number of looms	45,337	50,139	52,668
Average number operatives employed	184,779	195,277	208,616
Pounds yarn produced per spindle	113	112	129
Pounds cotton worked	683,948,272	736,663,648	793,218,272
Equivalent in 392-pound bales	1,744,766	1,879,244	2,023,516
Equivalent in 500-pound bales	1,367,896	1,473,327	1,586,436

The figures reported for the capital stock were given as $44,954,985 in 1906, but as 37 of the 217 mills failed to state this item the figures given are approximate. If the average of the mills not reporting is the same as those reporting, the total capital stock is about $55,000,000.

INCREASE OF LOOMS.

These figures show that for the last two years the operatives employed increased at the rate of 12,000 a year and the bales of raw al worked at the rate of 139,000 a year. They also show that ber of looms is increasing at a faster rate than the number dles and that mule spindles are being replaced by ring

spindles. As in Japan and other countries, the tendency seems to be for yarn mills to add looms, for the reason that the cloth market, being farther removed from the raw material, is a more stable market than the yarn market. At times the yarn mills make much larger profits than ever fall to the lot of the weave mills, but when the reaction comes the yarn mills usually feel it first. Thus in 1905 and part of 1906 Indian yarn mills simply coined money, while the weave mills made only moderate profits. At this time (April, 1907) the yarn mills are running short time and the weave mills are making about the same profits as before. The greater steadiness of the market, together with the fact that it has been found there is a good opening for cheap Indian cloths in China as well as in Africa, has caused many of the yarn mills to order looms. It is well known that lower-grade yarn can be better spun on the mule than on ring frames, and for a while it was considered that only the mule was suitable for Indian spinning. But the great improvements made, added to the fact that ring spinning takes up so much less space, thus making first cost of building less, and also the fact that ring spindles on an average will get off nearly 10 per cent more production at a less labor cost, have combined to cause most of the new mills to adopt ring spinning and also have caused old mills to substitute ring frames in place of their mules.

BEGINNING OF THE INDUSTRY.

The cotton mill in India dates only from 1854, when a Parsee merchant named Cowasji Davur built a small mill at Tardeo, near Bombay. The industry has been more or less under the control of the Parsees ever since. At the time the foundations were laid for this first mill there were more spindles in Lancashire than there are in the United States to-day, but the industry thus inaugurated has developed until it has not only closed the yarn trade of India to England, except on the highest counts, but has also reached out and captured from it the yarn trade of China, with the result that Lancashire manufacturers have been driven to make cloth and not yarn their main export. When the first mill was built there was only one railway 20 miles long in all India, and that was the line called the Great Indian Peninsula Railroad running from Bombay to Thana. The growth of the railroads and of the mills has been parallel, until there are now some 217 cotton mills and about 30,000 miles of railway.

All the first mills, as in fact all the mills since, were patterned after the English, and all the columns and other ironwork and even the foundation stones for the engines were imported from England. Up to 1880 the mills all used toothed gearing and spur wheels, but rope driving was introduced about that time and was universally

adopted. The Indian mills as a rule use rope drives, not only for the main drive but also for the main counters. Wide belting is little used.

RESULTS OF IMPROVED MACHINERY.

At first the mills made coarse yarns only, but soon began making coarse cloth about 44 by 48, using average 16s warp and 22s filling, obtaining a production of about 9 pounds per loom per twelve hours. About 1885 the mills found that with the improvement in machinery they could make finer yarns, and the standard was raised until to-day it is given at about 52 by 56 cloth made of average 22s warp and 30s filling, with a production of some 14 pounds per loom per twelve hours. In some places, especially Ahmedabad, 26s warp and 38s filling are used, and the finished cloth has up to 35 per cent size. Ordinarily Indian cloth is now sized about 20 per cent, as against 10 per cent formerly used. Up to 1885 the mills made only gray goods, but striped and checked goods were then manufactured in a small way, and this line was greatly aided in the nineties by the advent of the cheap German dyes. The German houses not only sold the dyes, but sent out experts to get the mills started on them.

The great advantage of Indian mills is the cheapness of their raw material and labor, and the great disadvantage is the quality of their raw material and of their labor. Either one separately would limit the mills to coarse work, but especially when the two are combined. The cotton mills have grown by starts. In 1855 there was one mill; in 1865, thirteen; 1875, thirty-six; 1880, fifty-six; 1885, eighty-seven; 1890, one hundred and thirty-seven; 1895, one hundred and forty-eight; 1900, one hundred and ninety-three; 1905, one hundred and ninety-seven; and 1906, two hundred and seventeen.

VARIOUS VICISSITUDES.

The Indian cotton manufacturing industry has suffered from as many ups and downs as fall to the lot of the industry in other lands, and has had to stand several special drawbacks incident to India, such as plague and famine. The year 1885 seems to have marked a turning point in the upward climb, and with the great improvements in cotton-mill machinery introduced into India about that time, such as ring spinning and the revolving top flat card, the mills began to make finer yarns and cloth and of more variety and to reach out after new markets for their goods. In the five years from 1885 to 1890 there were added an even fifty mills, which marks the time of greatest expansion. There was a fairly good business and healthy expansion up to about 1897, when the plague struck Bombay.

In October, 1896, the population of that city was estimated at 846,000. Within six months it dropped to 450,000. The cotton-manufacturing business was almost paralyzed through the great number of operatives who either fled or succumbed to disease. Since that time the plague has never left the city, and during each "cold-weather period," from October to March, it scourges with terrible virulence. During the past 4,000 days the plague has claimed in this one city alone an average of forty lives a day, and it is still raging with almost undiminished violence. It has become so familiar to the people that it no longer interferes with business, as at first.

This condition of affairs is necessarily a drawback to manufacturing, however, and necessitates the breaking in of many green hands. In 1899–1900 the failure of the cotton crop and later widespread famine in India and the disturbed condition of their main market, China, together with the fluctuations of the silver exchange values, prevented the mills from having any but the most temporary spurts of prosperity. On top of this came the great cotton speculation in America, which forced the price of cotton all over the world to such a point that there was no profit in the manufacture, and here, as elsewhere, the mills had either to run short time or shut down. India supplies cheap yarn and fabrics, and her customers could not pay the high prices that would have been necessary to make manufacturing profitable. All margin of profit disappeared, the Indian mills curtailed their production and ran half time, and many mills failed or changed hands, with total loss of capital. From 1900 to 1905 only five mills were built and one was burned, so the net gain was only four.

VALUE OF THE CHINA MARKET.

The great curtailment of India's yarn output left the China market bare of stocks, and when cotton dropped back to normal again the pendulum swung the other way, and during 1905 and most of 1906 Indian cotton mills had the most prosperous period in their history. Some mills claim to have made as high as 77 per cent of their paid-in capital, but nearly all of them had been hard hit before, and a great amount of the profit thus made was necessarily used to recover previous losses. About 40 per cent was the highest actual dividend paid by any one mill. Some two dozen mills declared 20 per cent or over, and a large number declared 10 and 15 per cent dividends and used the remainder of their profit to put the mills in better shape. This great prosperity led the mills to push production to the highest point and to run as many hours a day as possible, so as to take full advantage of the flush period. The business was overdone, and as in the case of American cloth sales the capabilities of the Chinese market were overestimated and large stocks of Indian yarn began to

accumulate at Shanghai and Hongkong. Then followed a series of disasters in China, of which the basis was the extensive failure of the rice crop. America, India, and England were all hard hit—America in sheetings and drills, England in white and gray shirtings, and India in yarn and opium. English and American piece goods and Indian yarn piled up in the warehouses in China until they have become a drug on the market, and the end is not yet.

SHORT-TIME MOVEMENT.

This situation has been again met by the short-time movement, and beginning with April 1, 1907, many of the Bombay yarn mills started on four days a week. The cloth mills continue to run full time. Except for this yarn congestion there would just now be a great expansion of the mills in India, as the great profits of 1905 and 1906 have not only put the mills in much better shape than usual, but have interested the public in mill investments, and as soon as the present serious crisis is over there will be renewed mill building, especially of weave mills.

Indian mills usually spin 10s and 20s, but whenever a time of depression arrives their policy has been to attempt higher numbers, such as 30s, so as to keep their force together, yet use less raw material. In most cases on account of the fixed charges the loss is smaller when running on 30s than if the mill were shut down.

The effect of the present depression will be to put some of the mills on finer numbers, at least temporarily, and will also cause them to cultivate their home market more. Of some 550,000,000 pounds of yarn consumed in all India in 1906 (including about 325,000 bales estimated as hand spun), the Indian cotton mills supplied 68 per cent of the total, or 90 per cent of the mill yarn; but of the 4,750,000,000 yards of cloth consumed in all India in 1906 (including 1,650,000,000 yards estimated as woven on hand looms), the Indian mills produced only 13 per cent of the total, or 16 per cent of the cotton-mill cloth.

The following table shows the consumption of mill yarn in India during the years ended March 31, 1904–1906:

CONSUMPTION OF YARN IN INDIA, 1904–1906.

	1904.	1905.	1906.
	Pounds.	*Pounds.*	*Pounds.*
Indian yarn produced	578,759,075	578,381,275	680,918,581
British yarn imported	26,160,445	28,176,989	43,021,758
Other foreign yarn imported	1,856,120	2,398,866	2,754,984
Total yarn supply	606,775,640	608,957,130	726,695,323
Indian yarn exported	252,474,245	247,854,797	297,634,314
Foreign yarn reexported	1,160,618	1,299,680	890,253
Yarn consumed in India	353,140,777	359,802,653	428,170,756
Cloth woven by Indian mills	138,044,172	158,746,555	163,878,264
Yarn bought for hand-loom use	215,096,605	201,056,098	264,292,492

The native mills furnish the great bulk of the yarn up to No. 30s, but of the smaller quantity of finer yarns used nearly all is imported. Over half of the imported yarn is dyed. Of this dyed yarn one-half is turkey red, one-fourth is orange and yellow, one-tenth is green, and the remainder other colors. Of the yarn given below as mule and water yarns, about one-tenth is bleached and the remainder is gray. The foreign yarn imports for 1906 is shown in detail, as follows:

	Pounds.	Value.		Pounds.	Value.
Mule and water:[a]			Colored yarns—Continued.		
Under 25s	554,924	$94,916	26s to 30s	948,491	$204,004
26s to 30s	4,840,240	919,261	31s to 40s	17,217,760	4,211,333
31s to 40s	10,690,136	2,215,291	41s to 50s	950,864	291,927
41s to 50s	1,780,297	425,466	Above 50s	996,505	427,706
Above 50s	2,093,970	712,274	Unspecified yarn and others	2,782,765	914,323
Colored yarns:					
Under 25s	2,920,790	681,790	Total	45,776,742	11,098,291

[a] "Water" yarns are frame spun.

Owing to the growing output of the native mills, especially on numbers under 30s, the import of outside yarn is gradually decreasing. Of the 2,754,984 pounds of the above yarn that came from countries other than Great Britain, Italy supplied 1,029,465 pounds (chiefly colored above 30s); Belgium, 696,960 pounds; Austria, 622,384 pounds, and France, 199,930 pounds.

PRODUCTION OF INDIAN YARN.

Except for the higher numbers, the Indian yarn mills now have the monopoly of the home market and are also exporting enormous quantities of yarn. The following shows in detail the production of yarn in India for the last three years, each ending March 31:

QUANTITY AND COUNTS OF YARN SPUN IN BRITISH INDIA AND NATIVE STATES, YEARS ENDED MARCH 31, 1904–1906.

Count or No.	1904.	1905.	1906.	Count or No.	1904.	1905.	1906.
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*	*Pounds.*	*Pounds.*
1	26,958	17,920	31,466	23	1,878,889	1,907,832	2,145,281
2	387,558	306,449	273,202	24	16,614,711	19,663,443	22,718,561
3	325,308	458,172	488,903	25	3,337,943	3,134,202	3,045,327
4	1,982,430	1,859,281	2,304,476	26	7,559,398	9,880,857	9,821,060
5	8,320	86,394	7,428	27	131,395	1,302,145	1,865,608
6	13,350,703	12,422,200	13,988,116	28	4,572,049	4,119,028	5,842,984
7	3,949,603	4,890,823	5,701,697	29	66,932	104,565	67,892
8	5,938,165	5,528,763	5,303,676	30	12,112,507	13,102,128	11,886,531
9	3,936,083	3,700,688	4,814,214				
10	121,481,970	132,313,744	166,066,232	Nos. 21 to 30	86,790,338	95,932,151	105,779,111
Nos. 1 to 10	151,387,098	161,584,434	199,029,410	31	248,557	501,631	145,829
				32	4,909,852	3,964,351	4,535,209
11	25,052,305	22,832,316	34,874,434	33	1,599,876	1,543,445	1,141,985
12	57,186,886	46,057,430	61,186,275	34	3,177,990	2,200,595	2,338,244
13	15,750,210	13,049,202	16,617,872	35	491,764	1,684,506	1,252,054
14	16,536,666	14,306,595	17,243,075	36	948,062	2,817,922	1,668,566
15	5,863,547	7,585,898	7,940,613	37	18,011	212,659	600,190
16	39,569,046	30,815,250	40,206,914	38	23,024	36,991	874,258
17	12,890,033	12,243,715	12,259,513	39	29,297	1,586	25,041
18	11,840,655	13,750,919	17,330,624	40	5,071,355	4,186,210	3,025,633
19	5,491,321	5,879,431	7,021,299				
20	132,940,867	135,916,125	144,682,955	Nos. 31 to 40	16,517,788	17,149,896	15,607,009
Nos. 11 to 20	323,121,536	302,436,881	359,363,974	Above 40	942,315	1,277,913	1,139,477
21	19,539,693	15,859,674	20,097,203	Total	578,759,075	578,381,275	680,918,581
22	20,976,821	26,858,277	28,288,664				

The foregoing figures include yarn woven as well as that sold. The bulk of the 10s, 16s, and 20s is export yarn and is sent mainly to China. The yarns from 6s to 16s are largely sold to the hand-loom weavers, who make coarse, thick cloths from them which are unsized and on most of which the cotton mills can not compete on account of the cheapness and the fact that pure sizing is required. From 20s to 26s are used in the mills in making shirtings, chadars, T-cloths, etc. From 26s up the yarn is used for dhooties, saris, etc., and part is used in the mills, but the larger portion by the hand looms, which use foreign warps and Indian filling.

ENGLISH MONOPOLY ON CLOTH.

On yarn the Indian mills have a monopoly, as shown, but on cloth the conditions are reversed and English mills have a monopoly. The cloths imported into India in largest quantities are shirtings and the typical Indian cloths—chadars, dhooties, saris, and scarves. Next to these the largest imports are nainsooks, then follow prints, jaconets, and mulls. The total foreign cloth imported in the fiscal year ended March 31, 1906, is shown as follows:

CLOTHS IMPORTED INTO INDIA, YEAR ENDED MARCH 31, 1906.

Cloths.	Gray.	White.	Colored, printed, or dyed.
	Yards.	*Yards.*	*Yards.*
Shirtings	605,792,616	109,621,696	80,408,642
Chadars, dhooties, saris, and scarves	565,765,943	59,077,936	73,507,499
Nainsooks		229,132,841	
Mulls	17,518,330	103,711,695	1,883,658
Jaconets	103,046,175	24,898,142	5,347,999
Cambrics, twills, muslins, and lawns	24,158	11,390,007	79,156,528
Jeans, drills, and sheetings	28,389,701	9,399,658	7,338,646
Prints and chintz			184,878,833
Madapollams	18,849,803		
T-cloths and domestics	8,801,099		
Long cloths	19,931	2,881,388	
Checks, spots, and stripes		5,416,700	
Unspecified	628,390	17,219,567	109,124,818
Total	1,348,836,146	572,749,710	541,646,623

The piece goods imported into India for the year ended March 31, 1906, by countries, were as follows:

PIECE GOODS IMPORTED INTO INDIA YEAR ENDED MARCH 31, 1906.

Country.	Yards.	Value.	Country.	Yards.	Value.
Great Britain	2,415,175,082	$115,223,931	Germany	2,771,867	$123,832
British colonies	1,897,785	124,069	France	1,749,950	150,114
Netherlands	16,273,733	1,178,294	Japan	260,097	21,141
United States	10,458,714	824,627	Others	111,516	8,962
Belgium	6,835,662	742,724			
Italy	4,518,384	594,452	Total	2,463,232,479	119,729,342
Austria	3,179,689	437,194			

The piece goods produced in India are mainly shirtings and long cloths, dhooties and chadars, T-cloths, domestics, and sheetings, as shown by the following table. The years are fiscal years ended March 31.

WOVEN GOODS PRODUCED IN BRITISH INDIA AND NATIVE STATES, 1904–1906.

	1904.		1905.		1906.	
	Pounds.	Yards.	Pounds.	Yards.	Pounds.	Yards.
Gray goods:						
Shirtings and long cloths	39,185,808	163,298,745	46,487,091	201,711,407	43,614,973	189,293,192
Dhooties	26,698,800	117,952,954	29,094,516	130,527,049	31,728,016	144,608,621
T-cloths, domestics, and sheetings	19,063,535	87,763,797	21,004,165	98,285,521	26,813,159	119,725,797
Chadars	14,061,194	39,940,416	14,256,040	40,266,481	14,604,765	42,367,477
Printers	4,041,360	18,634,138	6,509,639	30,769,760	7,639,992	31,876,460
Drills and jeans	1,852,710	5,661,611	2,981,985	9,267,089	4,234,099	14,517,551
Cambrics and lawns	96,490	776,386	141,773	1,146,488	167,549	1,144,992
Other kinds	7,347,889	26,516,226	9,582,215	35,739,186	5,848,064	19,322,084
Total	112,347,786	460,544,273	130,057,424	547,712,981	133,650,617	562,856,174
Figured and colored goods	23,276,291	.....	25,531,677	.....	28,497,306	.....
Hosiery	814,331	.....	759,402	.....	758,751	.....
Miscellaneous goods	1,605,764	.....	2,299,052	.....	971,590	.....
Total	138,044,172	.....	158,746,555	.....	163,878,264	.....

MILL CENTERS.

The cotton-mill centers of India are Bombay, Ahmedabad, Calcutta, and Cawnpore, followed by others such as Madras, Nagpur, Sholapore, Agra, Broach, and Delhi. The industry is spreading out, and there are now many cotton mills in all parts of India, and several are being built in the Native States. The first mill, however, was started in Bombay. This is the point most convenient to the best cotton fields of India, so the industry is still concentrated on the west coast. The Parsees, who have been most active in developing the industry, reside at Bombay, and the port of Bombay is the most convenient for obtaining machinery and mill supplies from Europe and for shipping the finished product. Against these advantages is the fact that mill labor is higher at Bombay, due to competition, also to the high price for fuel. Nearly all the fuel used in Bombay comes a thousand miles by rail from Bengal. At present over half the mills in India are on Bombay Island, and nearly three-fourths are contained in Bombay Presidency. Ahmedabad, in Bombay Presidency, is the second largest mill town and promises to become the fine-goods center.

AVERAGE OF SPINDLES AND LOOMS.

The largest mill in India is the Jacob Sassoon Mill at Parel, near Bombay, which contains 92,840 spindles and 1,810 looms. The next largest number of spindles is 86,040 in the Bengal Mill at Calcutta, while the largest number of looms in a single mill is 2,015 in the

Century Mill at Bombay. The average mill contains 25,000 spindles and the average weave mill about 500 looms. There are 21 mills that contain either 50,000 spindles or 1,000 looms each, all other being smaller. These 21 leading factories are as follows:

LEADING COTTON MILLS OF INDIA.

Company.	Location.	Spindles.	Looms.
Jacob Sassoon Mills	Bombay	92,840	1,810
Bengal Mills Co. (Limited)	Calcutta	86,040	.....
Dunbar Mills (Limited)	do	84,096	18
Victoria Mills Co. (Limited)	Cawnpore	75,050	900
Central India Manufacturing Co. (Limited)	Nagpur	74,924	1,384
Cawnpore Cotton Mills Co. (Limited)	Cawnpore	70,196	775
Gokak Water Power and Manufacturing Co. (Limited)	Gokak Falls	69,324	.....
Maneckjee Petit Manufacturing Co. (Limited)	Bombay	66,312	1,810
Bowreah Cotton Mills Co. (Limited)	Calcutta	63,994	.....
Goosery Cotton Mills Co. (Limited)	do	60,901	.....
Muir Mills Co. (Limited)	Cawnpore	55,168	1,251
Ahmedabad Ginning and Manufacturing Co. (Limited)	Ahmedabad	53,750	1,092
Century Spinning and Manufacturing Co. (Limited)	Bombay	51,920	2,015
E. D. Sassoon Mill	do	50,784	751
Sassoon Spinning and Weaving Co. (Limited)	do	48,506	1,063
Adamjee Peerbhoy Spinning and Manufacturing Mills	do	48,428	1,019
Swadeshi Mills Co. (Limited)	do	46,763	1,151
New Great Eastern Spinning and Weaving Co	do	45,350	1,082
Dinshaw Petit Mills	Mills	41,532	1,116
Standard Mills Co. (Limited)	Bombay	33,969	1,025
Rachel Sassoon Mill	do	.....	1,200

TEXTILE MACHINERY.

MANY REASONS FOR ENGLISH SUPREMACY.

There is practically no American textile machinery in India. There are over 5,000,000 spindles, over 50,000 looms, and the vast amount of other preparatory and finishing machinery for working up nearly 2,000,000 bales of cotton annually, but all of this machinery comes from England. England's monopoly is shown by the figures of the textile machinery imported for the fiscal year 1906:

Great Britain	$8,038,121	Austria-Hungary	$503
Germany	13,433	France	486
Belgium	10,522		
United States	3,918	Total	8,066,983

For American textile machinery to be sold in India in large quantities will be difficult but not impossible. The greatest difficulty is that the majority of the mills, whether owned by natives or by English, usually have English or Scotch headmen, and the majority of these have the comfortable conviction that machinery from the "old country" must of necessity be all right, while they "have their doubts" about machinery from any other country. The Parsees, who own the majority of the mills, are shrewd business men, however, and open to conviction. They have heard of "40 looms to a weaver," "spooler knot tiers," "drawing-in machines," etc., but are

not altogether certain whether the American invention lies in the machine or in the statement. While fairly well posted on English machinery, most of them have only a faint idea of what America is doing in this line. The head of one of the largest groups of mills in Bombay asked me if there were any cards made in America, stating that he understood United States manufacturers bought all their cards from England.

It is a question whether American manufacturers can compete here in price, but as a matter of interest I next give a few of the necessities and preferences of machinery buyers for Indian mills. The present is the best time that will ever come for American textile manufacturers to drive the entering wedge, for such is the congestion of the textile machinery manufacturers of England through the great boom in mill building there that in many instances they will not guarantee delivery within from twelve to eighteen months, and on account of the demand they have recently raised the price on many lines from 20 to 25 per cent.

CALL FOR PREPARATORY MACHINERY.

In the first place the Indian mills use a great deal of preparatory machinery, and willows and openers are common. Nearly every mill uses a Crichton vertical opener, which is very well suited to Indian cotton on account of its discriminatory action in clearing the excessive dirt and trash that are typical of Indian cottons. Regular dust trunks are not, as a rule, used, though most mills blow the cotton through a pipe from the opening room to the picker room.

A good many pickers and lappers are made to produce 44, 42, and 40 inch laps, respectively, which makes an even finisher-lap with smooth edges. Cards that are now being installed, however, are mostly 37 or 38 inches wide, and, of course, the lapper has to be narrower also. The managers claim that the flats of a revolving-top flat card can not be ground true on the card because of the sag, and so they are made of shorter length and are taken off and ground on a double-roller flat grinding machine. Most of the new cards have a slow-stripping speed for the doffer, and in some of the mills the cards are provided with an overhead shield to protect from damp. On account of the coarse numbers run most of the Indian cards are overworked. These produce 250 to 275 pounds on coarse work, say 49 to 60 grains per yard sliver, 12 to 14 ounce lap, in a 14½-hour day.

DRAW AND FLY FRAMES.

On draw frames the tendency seems to be toward longer frames, eight or nine deliveries, instead of the six ordinarily used. The

mechanical stop motion is preferred to the electrical on account of the help. Flat revolving-top flannel clearers, from which the lint is scraped at every revolution, are the rule. The bottom steel rollers are $1\frac{1}{8}$, 1, $1\frac{1}{8}$, and $1\frac{1}{8}$ inches diameter, respectively. Fluted steel-top rolls are not used. A manager gave as a reason that Lancashire did not use them much, and if Lancashire did not prefer them they could be of no use. A more sensible reason is probably the dampness of the monsoon season, which would tend to make them rust and cut.

On the fly frames the rolls are usually about an eighth of an inch smaller in diameter than in American frames, and on spinning frames the same. The shorter the staple the smaller the diameter of the rolls. The Indian mills formerly used the larger rolls, but as soon as they commenced using smaller rolls they found a great improvement both in quality and quantity of work turned out. The slubbing frame usually has 1, $\frac{7}{8}$, and 1 inch rolls; the intermediate frame the same, and the roving frame $\frac{7}{8}$, $\frac{3}{4}$, and $\frac{7}{8}$ inch. The spinning-frame rolls are usually $\frac{7}{8}$, $\frac{3}{4}$, and $\frac{7}{8}$ inch, or $\frac{13}{16}$, $\frac{3}{4}$, and $\frac{13}{16}$ inch.

ENGLISH SYSTEM ON SPINNING FRAMES.

On the spinning frame, instead of the usual American system of three leather-covered top rolls weighted from saddles, stirrup, and lever, the regular English system is universal, of having one weighted front roll leather covered, while the other two rolls are bare iron rolls and self-weighted only, the middle one being thirteen-sixteenths inch diameter and the back one 2-inch diameter. A round-top clearer is used in front and an under clearer, but no top clearer boards, the rolls being uncovered. Single roving is universal. There are only 6 deliveries between stands instead of 8, so the spindles to a frame are usually in multiples of 6 instead of 8, 252 and 300 spindles being common lengths, though some are much longer. The double cylinder is ordinarily used. On account of the staple the traverse is an inch shorter and the rings an eighth of an inch smaller diameter than would be used for American cotton on the same numbers. Running 20s warp in America, the ordinary frame would be 208 spindles, $1\frac{3}{4}$-inch rings, $2\frac{3}{4}$-inch gauge, and 6-inch traverse. In India for similar yarn the frames are ordered 300 spindles, $1\frac{5}{8}$-inch rings, $2\frac{5}{8}$-inch gauge, and 5-inch traverse.

Self-balanced metallic thread boards are not used. The separators are usually narrow and in many instances are simply horizontal strips of metal with semicircular spaces stamped out. They appear much inferior to many American makes.

MULES AND REELS.

The mules have the same size rolls as the ring spinning. The ring frames are superseding the mule frame on most numbers. The mules, however, are preferred on Indian cotton for numbers above about 26s, and are essential when spinning low-grade Indian waste yarns such as 3s and 6s.

The reels are all fitted with measuring attachments for knocking off at 120 yards, and are all 40-spindle. The bobbins or cops are placed in front, and for cops usually live horizontal spindles are used. The swift is the regular 54-inch reel. A great many hand-driven reels are used in the cotton mills of Bombay. These have a small pulley on the swift shaft driven by a short belt from a large handwheel, with handle fastened to one of the spokes. The yarn is sometimes put up in the 10-pound bundles by hand, but usually belt-driven yarn-bundling presses are used. The cost of these presses is high, being £23 ($111.93) each.

The loom preferred is the overpick. Very few underpick looms are to be seen. Warp stop motion is not suited to the Indian yarn, but a loom with a battery attachment would sell well on this market and be especially suitable on account of the short quills. It would not be so suitable, however, to mills making dhooties, where variegated headings have to be inserted by hand. Raw-stock dyeing machines would find no sale, for the reason that Indian mills use small quantities of any one color, and so prefer chain dyeing. More mills are trying to get on to finer goods and are installing finishing processes; and an American agent recently on this line found the prospect very encouraging, since American were in many instances so much more efficient than the English machines. The English machines are using the same patterns they used twenty years ago. He proved to the mill owners that it was economy to buy the American machine, and he also could give much quicker delivery than any English firm will promise at this time. On account of the class of work, the kind of help employed, and, to a certain extent, the climate, textile machinery in India depreciates much more rapidly than similar machinery in England or America.

MILL MACHINERY PRICES.

Prices of cotton-mill machinery vary at different times and to different mills. The following prices were taken from the machinery invoices of a Bombay mill that has installed a good deal of machinery within the last year and a half. This mill is so situated in regard to the machinery people that it probably gets the very lowest prices. The prices are those of 1906 (£1=$4.8665).

PRICES OF MILL MACHINERY IN INDIA.

Machine.	English currency.	United States equivalent.
	£ s.	
Crichton double beater opener	268 0	$1,280
Hopper feed	112 0	545
Finisher scutcher	107 0	521
Revolving top flat card	85 0	414
Double roller flat grinding machine	80 0	389
Traverse emery-wheel grinder	10 0	49
Draw frames, per delivery	8 0	39
80-spindle slubber	130 15	636
122-spindle intermediate	153 6	746
154-spindle fine frame	122 0	594
360-spindle spinning frame	148 0	720
40-spindle reel	10 0	49
Yarn-bundling press	23 0	112

These prices were c. i. f. Bombay and with 10 per cent off for cash.

The cost per spindle of an Indian mill varies greatly at different places, but the following are the figures given for a new 42,000-spindle Bombay mill just after starting operation (1 rupee=32.4 cents):

COST OF AN INDIAN MILL.

Item of cost.	Indian currency.	United States equivalent.
	Rupees.	
Building	292,000	$94,608.00
Sprinklers	33,340	10,802.00
Machinery and accessories	1,236,800	400,723.00
Electric lights	34,500	11,178.00
Stock and stock in process	397,300	128,725.00
Total	1,993,940	646,036.00
Cost per spindle		15.38

HAND LOOMS.

INDIA NOTABLE FOR THEIR EXTENSIVE USE.

In the United States a hand loom is a curiosity and is rarely seen outside of museums. In Great Britain there are a few hand looms, but their clack can not be distinguished amid the roar of the power looms. On the continent of Europe there are a great many, but their total production is very small indeed as compared with that of the power looms. In the East, however, the hand loom still flourishes, and the extent of this industry is not generally realized. The hand loom in the twentieth century is an anachronism, but it is probably not incorrect to say that of the portion of the world's inhabitants that wear clothes at least one-fourth are clothed in the product of the hand loom.

COMPARISONS WITH JAPAN AND CHINA.

Japan there are some 85 mills, with 1,450,949 spindles and 9,136 which produced in fiscal year 1906 375,000,000 pounds of yarn

and over 120,000,000 yards of cloth. The domestic demand for yarn was 276,871,000 pounds, leaving out any hand-spun yarn from Japanese cotton, which need not be considered, as most of the small amount of cotton raised in Japan is not spun, but used for batting, for padding winter clothes, etc. The regular cotton mills therefore supply but a very small proportion of the clothing requirements of the people of Japan, which is supplied by foreign nations, by the small native establishments run by water, oil, or electricity, and by hand looms. The hand looms are decreasing and the small power establishments increasing, but there are still over half a million hand looms in operation in Japan, and they probably produce at least one-third of the cloth used.

In China there are some 18 cotton mills, with 619,648 spindles and 2,250 looms, producing 100,000,000 pounds of yarn and a small quantity of cloth. This is only a trifle as compared with the imports of yarn and cloth; but while the native of China is adopting the foreign yarn where available, there are many stretches of China where it is not used and where the native sticks to his hand loom. While anything on this subject is more or less guesswork, it is probable that 60 per cent of the inhabitants of China are clothed in the product of the hand loom. There are a few other cotton mills in the East—for instance, one with 10,000 spindles and 300 looms in Manila and four or five yarn mills in Tongking, but their total production is small.

PRODUCTION OF INDIA HAND LOOMS.

In India the last census showed 2,700,000 hand-loom weavers, whereas the power looms only number 52,668. Adding together the yarn imported and the yarn produced by Indian cotton mills, and subtracting the exports of yarn and the pounds of cloth produced by Indian mills, the figures for 1906 show 264,292,492 pounds of mill yarn purchased by the hand-loom weavers. To this must be added the hand-spun yarn. It is estimated that there are 400,000 bales of cotton in India annually that do not find their way into the hands of the mills nor of the exporters, and that of this amount at least 325,000 bales, or, say, 130,000,000 pounds, are used to make hand-spun yarn. This, added to the foregoing figures, gives nearly 400,000,000 pounds of yarn used by Indian hand-loom weavers, and corresponds fairly well with the estimates made by a leading Indian authority, and generally regarded as correct, that the production of native hand looms is about 1,650,000,000 yards. In 1906 there were imported 2,463,252,479 yards. The Indian cotton mills produced in the same time a total of 163,878,264 pounds of goods, of which 971,590 pounds were put down as miscellaneous goods, 758,751 pounds as hosiery, 28,497,306 pounds as colored goods, and 133,650,617 pounds, or 562,856,174 yards, as gray goods. The cotton mill returns give only

the gray goods in yards, but after subtracting a total export of 91,974,962 yards the Indian mill cloth used in India falls under 600,000,000 yards. Of the total of about 4,750,000,000 yards of cloth used in India in 1906, therefore, the hand looms produced 34 per cent, and in years when the foreign import is not so large the hand looms produce 40 per cent or more of the total. These facts and figures give an idea of the importance of the hand loom in the East.

EXCESS OVER POWER LOOMS.

It will be noted that the hand loom in India produces between two and three times as much as the power loom. While gradually decreasing before the onward march of machinery, the hand-loom industry is still very large, and it will be many years before it takes second place, and many more before it becomes extinct. The position of the Indian hand-loom weavers in most cases is very bad, and the majority never have enough to eat from the day of their birth to the day of their death. In former times, especially the golden days of the great Mogul emperors, the emperor and the princes had weavers attached to their households and encouraged the work, so that very fine cloths were produced. Sure of a support from their masters, these weavers took no account of time and executed very elaborate patterns, but the increasing competition of the present has changed all that, and every year a few thousand more hand-loom weavers are forced out into other occupations. A great many weavers follow the trade as their hereditary occupation, and when it began to feel modern competition and the demand was not sufficient to keep the looms going, they simply sat down and starved rather than to seek a new calling.

SOURCES OF CLOTH SUPPLIES.

It is interesting to study the field of the hand loom and of the power loom in India and to see what cloths are made by each. The director of agriculture and industries of Baroda State in a recent paper estimated the cloth consumed in India and the sources of production as follows:

COMPARISON OF HAND AND POWER LOOMS.

Cloth.	Warp counts	Filling counts	Indian hand loom supply.	Indian mill supply.	Imports.	Total consumption.	Percentage.
			Yards.	*Yards.*	*Yards.*	*Yards.*	
Coarse.....	6s to 18s..	6s to 20s.	900,000,000	60,000,000	300,000,000	1,260,000,000	26
Coarse medium.	20s to 28s..	28s to 40s..	150,000,000	500,000,000	1,100,000,000	1,750,000,000	37
Medium.....	28s to 40s..	36s to 50s.	150,000,000	40,000,000	750,000,000	1,240,000,000	26
.....	Over 40s..	Over 40s	150,000,000	.....	350,000,000	500,000,000	11
Total.....			1,350,000,000	600,000,000	2,500,000,000	4,750,000,000	100

This gives a total consumption for India of 4,750,000,000 yards of cloth, of which England supplied 53 per cent, Indian power looms 13 per cent, and Indian hand-loom weavers 34 per cent. Figures in regard to hand-loom production are necessarily approximations, but estimates by various authorities range between two and three times the mill production. According to the foregoing table, which is believed to be approximately correct, the bulk of the coarse goods up to 16s warp and 20s filling are produced on Indian hand looms. Part of the yarn is brought from the mills, but in the country districts and off the railroad line it is still largely hand spun. The coarse cloths in this class, like the coarse "nankeen" made by the Chinese, are required to be strong and yet soft, and the Indian mills can not produce this class of goods without sizing heavily, which would make the cloth too harsh, so the hand-loom weaver with his cheaper labor still controls the trade in coarse cloths.

CLASSES OF GOODS.

The goods classed as coarse medium form over one-third of the cloth consumption of India and are mostly made in England. This class comprises chadars, T-cloths, shirtings, etc. The goods classed as medium are mainly the typical Indian cloths, dhooties and saris, the former being used by men and the latter by women as their main garment. Only American cotton is suitable for producing the quality desired in these garments and only in the cheaper grades do the Indian mills compete. A large quantity of these are produced on Indian hand looms using English yarn made of American cotton.

On fine and fancy goods Indian mills restricted to Indian cotton do not compete, and England supplies the bulk of the demand. About one-fourth of the fine goods are produced by Indian hand-loom weavers with imported yarn. The bulk of the imported fine goods are white mulls and nainsooks. On such goods the cost of labor is a larger factor than the cost of material, and if the native weavers were able to bleach and finish as well as the English the hand looms could compete, but as it is their methods are too slow and costly.

Cloth made by the cheap labor on the hand loom is more expensive per yard than cloth made by higher priced labor on the power loom, and if it was not for the power loom there would be in India many thousand more people wearing rags who are now enabled to appear respectable. The laboring class purchase mill-made dhooties made from of 30s to 40s yarn, 44 inches by 5 yards, at about 1 rupee 5 annas (say 42 cents) per pair. Hand-woven dhooties of similar counts and size would cost at least 1 rupee 9 annas (say 50 cents) a pair. A pair here refers to the two 2½-yard dhooties that usually come in a 5-yard

length with a colored cut mark woven between them. The ordinary dhooty is worn day and night and lasts on an average three to four months.

METHOD OF BLEACHING.

The method used in India for bleaching fine cloths, such as Dacca muslins, takes about two weeks. The cloths are first washed, then steeped for some hours in a mixture of soap and fuller's earth. They are then half dried and steamed. For the latter process the cloths are twisted into loose bundles and arranged in circular layers around a bamboo tube connected with a boiler. The steam is then diffused through the cloths for a night. They are then again steeped in the mixture of soap and fuller's earth and again steamed. This process, which is the same as the English bucking and crofting, is continued for ten or twelve days. Finally the cloths are steeped in clean water mixed with lime juice. Bright sunshine is a great help. The advantage of this method is that no acids or corrosive chemicals are used, but the resultant bleach can hardly be as even as when obtained by more modern methods.

PRIMITIVE WAYS EMPLOYED IN PREPARING COTTON.

The primitive method used in India to make cloth from cotton, the method that was used centuries ago and that is in daily use by thousands all over India to-day, is as follows:

The cotton is picked by women, the pods exposed to the sun and the husks removed. The women remove all the immature and rotten cotton and then pick out all the free lint possible by hand. The majority of the lint is freed from the seed by a primitive ginning arrangement, consisting simply of two 1-inch wood rollers revolving together and turned by a small crank on the end of the lower roller. The crank is turned with one hand and the cotton fed between the rolls with the other. The rollers, which run tightly together, catch the lint and draw it through while the seed, being too large and hard to pass through, falls to the ground. This primitive gin is known in the vernacular as the "churka," and produces 6 to 8 pounds of cleaned cotton a day. Ten seers (20 pounds) of cotton in the seed is figured on to give 3 seers (6 pounds) of lint cotton and is an ordinary day's work for one man. The cleaned cotton is then put out in the sun to dry, after which it is "carded" by a simple contrivance known as a "dhunetta" or "dhania."

This operation is performed by means of a bow. The contrivance consists essentially of a bow of hard wood, to one end of which is attached a board of a quadrant shape. A bowstring passes over a bridge of wood attached to the other end of the bow and is tied to

the end of the board. A loop of string, under which the left hand is passed to hold the instrument steady, and a wooden mallet complete the contrivance. The bow is held with the left hand under the loop so that the string just touches the cotton, and the carder with his mallet twangs the string so that it vibrates and strikes the cotton at each twang. The fiber is thus separated, and its texture being loosened it flies off in a fluffy condition and the dirt and dust, which forms about one-twentieth of the weight, is knocked out.

ROUGH SPINNING WHEEL.

The next process is spinning. The machine is called a "charka," and is similar to the old spinning wheel used in America in former times, but more roughly made. It consists essentially of a horizontal spindle driven by a band from a hand wheel made with a hub from which project spokes. Every alternate spoke is on the right or the left side, and across the ends of these is stretched a cord that makes a circumferential track some 2 inches wide for the driving band to pass over. Cotton in the form of a wick or spool is presented to the point of the spindle and then spun into thread which is allowed to roll around the spindle. When the projecting point of the spindle is full the spun thread is removed and rolled around another machine commonly known as the "latai," which is nothing but a small conical-shaped frame of bamboo. When this pyramidal reel is full the thread is taken off and wound together in skeins and is ready for the weaver. From this point on the process is the same, whether the yarn is hand spun or purchased in hanks from the factory.

YARN STEEPING AND SIZING.

The yarn is usually steeped in fresh water for a day or so and then dried. This is done to strengthen it. The yarn is then sized, by being taken hank by hank and squeezed in a fluid until the threads are thoroughly permeated with it. In Bengal the fluid is usually made of roasted paddy (khoi) and tamarind, and in Madras of rice flour and gingelly boiled in water. The wet hank is then taken and placed around a "swift," and after this is rolled upon another framework called the "natai," and in going from one to the other is passed through the fingers of the left hand and cleaned of the superfluous size and water. This simple method of sizing enables the size to penetrate the yarn thoroughly and gives good results. As a rule there are no germicides or antiseptics used, since the climate, except in the monsoon season, is dry and the cloth reaches the consumer quickly after weaving. A good Indian size is made of 16 pounds rice flour, 4 pounds sago, 4 pounds gingelly oil, and 16 gallons water, boiled together until of the right consistency. It will be noticed that

rice flour or starch takes the place of the corn or potato starch used in the United States. Tallow, which is a common ingredient in such preparations in America, can not be used here on account of the religious prejudices of the people. The Hindoo religion touches every detail of their existence, and all ingredients are carefully examined to see if sanctioned by the laws of caste. In most sections of the country the higher castes of weavers can not use the starch of boiled rice without forfeiting their caste, and whatever starch they use must be of fried or parched rice, called "khoi" or "chira." On the other hand, the low-caste weavers would lose caste if they used either khoi or chira, and must use only the starch from boiled rice.

ADJUSTMENT OF THE WARP.

The warp is laid out by placing 10 stakes in a line, the two end ones being larger than the others and all about three feet high. The warper then holds the "natai" swift in one hand and with the other takes the thread from stake to stake, passing it inside one stake and outside the other and reversing this on the return trip. This is done until the total number of threads required for the warp is thus laid out, when they are left to dry and stretch. A wide comb, similar to an ordinary slasher comb, is then inserted into the warp at one end, the threads laid in two to a dent, and the comb moved along the threads to straighten and adjust them. As this comb is moved along the stakes are pulled up and the threads wound upon the end stake. Three of the intervening stakes are kept and wound around the central stake with the thread to act as lease rods in keeping the warp in order. The wound-up warp is then placed on the loom, the ends drawn in through the heddles and reed and the weaving started. The filling in the meantime has been wound on small quills by means of the spinning wheel and is placed in the shuttles. The shuttles used vary according to the section and the individual taste of the weaver, and are usually made of hard tamarind wood. In some places using the old throw-shuttle loom there is neither shuttle nor quill employed, but the yarn is wound from end to end of a short, oblong, wooden piece which has a short iron spike in each end. This is thrown through the shed from hand to hand and an amount equal to the length of pick is unwound each time before throwing. This is more used for weaving carpets, however, than for weaving ordinary cloth, though sometimes so used for the latter.

HOUSEHOLD MANUFACTURE FOR FAMILY WEAR.

A large amount of the hand-woven cloth is of household manufacture simply for the use of the weaver and his family. There is very little shipment of merchandise from hand looms between different sections, not anything resembling the great trade between Shanghai

and Manchuria in the Chinese "nankeen." Most of the cloth that is transferred from one section to another in India is either fine muslin or "bulbuls," or cloth that is only partially loom woven—that is, cloth decorated on the loom by needle. Usually only enough yarn is spun in a locality to meet the needs of that section, and it is the same with the ordinary cloth made.

The great part of the cloth woven by the professional weavers is sold in their own or the neighboring village. "Dalals" or brokers are the medium for effecting sales between the weavers and the shopkeepers in many localities, and for this service they usually charge 1 pice for every rupee of cloth sold, which is one forty-eighth, or say 2 per cent commission. Sometimes a weaver who is a little better off than his fellows buys up the surplus production of the village and retails it at the nearest hamlets or hawks it through the streets of a large near-by town, going from house to house and from store to store. Fine cloths are sold through dealers, and in the majority of cases are contracted for beforehand, the dealer supplying the cash in advance for buying the yarn and for wages and the weaver agreeing to make a certain number of yards at a definite rate per day.

VARIETY IN HAND LOOMS.

A great variety of Indian-made hand looms, some with very peculiar and crude ideas, is now being exploited on the Indian market. The best are modifications of the Japanese hand looms or of power looms, and are more or less automatic in action. At the annual Indian Agricultural and Industrial Exhibition that was held at Calcutta, one of the most prominent sections was devoted to the exhibit and advertisement of various hand looms. As a result of this many hand looms were purchased by visitors and shipped home to various parts of India. While all this seems very antiquated, yet this exhibition undoubtedly did good, for any kind of loom that tends to supplant the exceedingly primitive throw-shuttle loom will be an advantage to the masses of India.

The loom exhibited that would seem best adapted to the Indian native, who always prefers to sit or rather squat down to his work, was one in which all the motions of weaving were performed automatically by means of a handwheel at the end of the loom. The cost, however, was too high—being 150 rupees or about $50. There were several English hand looms, one being made of light iron, but here also the cost was prohibitive to the native.

IMPROVEMENTS PROPOSED.

This subject of improving the hand loom of India, on which over 6,000,000 people depend for their living, and which clothes over

100,000,000 inhabitants, or one-third of the total population, is attracting much attention from native editors and inventors, and also from Englishmen desirous of improving the condition of the masses. The native weaver, however, is in abject poverty and can not pay for an improved loom, and if he did, and made two days' wages in one, he would loaf every other day, so there is not much hope of improving his condition until the habits of the people have changed. Bad as are the conditions of operatives around Indian cotton mills they are better off than in their home village plowing or running the slow hand loom, and since it has been proved that the quick continuous action of machinery tends to make the machine tenders quicker in thought and action than the slower actions of farming and herding. there is no doubt but that cotton mills and similar establishments will do more to awaken and elevate the mass of the people than all the efforts, philanthropic or mercenary, in the direction of improving a decadent industry.

If the India power looms were worked to the efficiency of Western power looms the hand looms of that country would decrease much more rapidly than at present, but in both mill and cottage one weaver runs one loom and is equally absent-minded at his work. The average effective speed of Bombay power looms is stated to be not much over 100 picks a minute.

THROW AND FLY SHUTTLE WEAVING.

The hand looms used in India may be considered as of two kinds, the old Indian throw-shuttle loom and the newer fly-shuttle loom. The former is the simplest form of loom known, and as used in India to-day is exactly the same as it was centuries ago. It is weaving reduced to its essentials. It consists of a rough framework with an inverted lay swung from the top beam. The shed is formed by the feet working two treadles which, being attached to the heddles by cords passing over a beam, raise and depress them alternately. The shuttle is thrown through the shed with one hand and caught with the other, and the disengaged hand pulls the reed sley forward, beating up the filling. This is an extremely tedious form of weaving, and only some 20 to 30 picks can be inserted per minute. If the cloth being woven is wider than the stretch of the weaver's arms he has to employ another man at one side of the loom, and they throw the shuttle back and forth between them. When about six inches has been woven the operator has to stop and wind up the cloth.

The fly-shuttle loom requires less labor and puts in some 60 picks a minute, or double that of the older loom. This loom differs from the ther in that it has a picking arrangement. There is a wooden shute box at each end of the lay containing an iron rod on which slides

a shuttle driver or "picker." The two pickers are attached to each other by a string slung over the lay, and in the center of the string is a handle by which the shuttle is jerked from one box to the other across the lay. In this loom the heddles are worked with the feet as before, but one hand works the lay while the other, by pulling the handle attached to the strings, causes the shuttle to be thrown first from one and then from the other side. In this loom also the weaver has to stop every little while to wind up his cloth, as the simplest form of automatic take-up motion is a novelty to the Hindoo. There are also no temples to keep the cloth to width as used on power looms, but their place is taken by two sticks, measuring slightly longer than the width of the cloth that are joined together and fixed in it. These sticks assume the form of a bow and are called the "mothee." They keep the cloth out to the full width of the warp in reed, and also keep in the selvage ends.

JAPAN AS A TEACHER.

The Swadeshi leaders and the Indian people in general seem to be looking to Japan as the country from which they can learn most in the use and adaptation of small industries to their needs. Japan and India are brought in touch with each other by the large business that is carried on in shipping Indian cotton to Japan for use in Japanese mills and by the large number of Japanese curiosity and hand-ware dealers that settle in all parts of India. Japan is the country whose wages and methods of hand manufacture most nearly approach those of India, but the Japanese artisan uses his brain much more than the Indian artisan and his work in many lines is more skillful and in all less laborious. The Indian is therefore copying Japanese machines and methods of work, and young Indians have been sent to Japan to learn matchmaking, glass work, soap making, etc. Among other things the Indian is now copying the Japanese hand loom and modifying it to his use, even though it is rapidly going out of use in Japan itself. It may be mentioned in passing that the Japanese wooden hand loom is also largely copied in China and many are shipped from Japan to China complete with heddles and shuttles. All looms that I saw at work in Peking were of Japanese make.

SUPERIORITY OF JAPANESE LOOM.

The old Indian loom can not be run over some 30 picks a minute; the Indian fly-shuttle loom only runs some 60 picks a minute, whereas the Japanese hand loom will run up to 120 picks and turn out evener cloth. The shedding, picking, and beating-up on the Indian loom are performed by the feet, right and left hand, calling for three mechanical motions of the body, and necessarily limiting the speed.

The Japanese looms only require two, and some of them only one motion. In their best loom the feet work all the motions combined, and in others the feet work the heddles and the hands the lay, the loom picking automatically. The Japanese hand looms have the lay supported on swords from the sword-rock shaft, the same as with the power loom, instead of the inverted lay swung free from above, as in the Indian type. The Japanese loom is therefore superior to the Indian loom and can be run from two to four times as fast as the looms ordinarily used in India. It is being introduced to a certain extent, but the cost is prohibitive to most Indian weavers, who live only from hand to mouth. The Indian throw-shuttle loom costs anywhere from 5 rupees ($1.62) up, and the weavers very often make their own looms at practically no cost. Certain classes of weavers who wander from place to place usually save the reed and the shuttle, can settle down at any point, and in half a day's time make as good a loom as they had before. A good Indian fly-shuttle loom costs about 50 rupees ($16.20), while a good Japanese loom, in India, will cost about 125 rupees ($40.50), and the more improved ones will run up to 175 rupees or over. This puts the Japanese loom entirely out of reach of the ordinary weaver. To a good many of them, accustomed to the simplest mechanical appliances only, the plain Japanese loom seems too complicated, and the mass of the weavers prefer their old familiar style of weaving, regardless of any inducements as to higher production and enhanced profit. On many of the fabrics now run on the Indian hand loom, too, the quality of the yarn is such, on account of its soft twist and irregular size, that a speed of 60 picks per minute is all it can stand.

SMALL OUTTURN OF THE INDIA LOOM.

It has been figured out that the average hand loom in India produces only about two yards a day, which is certainly not sufficient to maintain a weaver in luxury. Working on ordinary coarse cloth, the outturn per loom varies from 5 to 10 yards, very rarely exceeding the latter. A few make as high as 15 yards a day, and there are looms on the market advertised to run 20 yards a day, but such production can not be obtained under ordinary circumstances. The cottage weaver sometimes has to pay considerably above the market price for his yarn, owing to the several intermediates through which it passes between Bombay and his native village, but in the larger towns the agents claim to buy and retail on a 2-per cent commission.

India is not a favorable country for weaving either with power or hand looms. The hygrometric conditions in most places are very bad; in some parts of the year a dry heat of terrific intensity, and in

others a very wet monsoon season, interfering with all work. Such a variable condition is worse on the hand-loom weaver, as he has no 120-pound pressure humidifiers, such as are possessed by most mills, with which to correct the humidity. As a rule, the cotton fiber, to withstand the strain of manufacture, should contain at least 8 per cent of its weight of moisture. The Indian hand-loom weaver in many places—they say this was also true of the old Dacca muslin weavers—places his loom in a pit in the ground and keeps the dirt floor moist, but this is only a makeshift, and no fixed humidity is attainable. This fact hampers production considerably.

METHODS OF DYEING.

CHARACTERISTICS IN COLORS AND PECULIARITIES IN CUSTOMS.

The average native of India is very poor and can afford but a garment or two, and a piece of cloth once bought is worn for months. The natural desire for some variety, which desire is especially strong with the women, is satisfied by dyeing the same garments over and over, using a different color each time. One of the most characteristic features of an Indian village is the lines of cloth spreading from one end of the village to the other, some being garments bleaching in the sun preparatory to dyeing and the others the many-hued new-dyed garments hung out to dry. Certain sections favor certain colors; some colors are peculiar to certain castes. For instance, Buddhists priests wear a peculiar shade of yellow that it is sacrilege for any other to wear, and distinctive colors are used at certain festivals and ceremonies. Thus, at one of the most noted festivals it is the custom for the orthodox to wear green. Green is not an ordinary shade in India, and the devotee probably can not afford a new garment, so he has his old one bleached and redyed a solid green—probably does it himself—and when the festival is over it is again bleached and dyed some ordinary color.

ANILINES AND ALIZARINES.

For such frequent dyeings as this it is necessary that a cheap dye be used and one that is not too fast. This condition is exactly fulfilled by aniline dyes, which are imported at low cost, are easy of application, fade readily, and can be used over and over on the same cloth without affecting the fiber. This has made imported dyes very popular with the masses and they are sold in large quantities. The figures for 1906 show the following mineral dyes imported:

DYESTUFFS IMPORTED INTO INDIA IN 1906.

Whence imported.	Alizarine.		Aniline.	
	Pounds.	Value.	Pounds.	Value.
Belgium	4,132,318	$714,178	3,197,978	$845,746
Netherlands	1,122,823	160,817	77,770	19,836
United Kingdom	1,019,903	157,806	219,056	67,457
Germany	22,381	4,031	558,838	128,560
Italy			687,145	180,095
Others	152	26	567,440	174,554
Total	6,297,577	1,036,858	5,308,207	1,416,248

This gives a total of 11,605,784 pounds of mineral dyes, amounting to a value of $2,453,106 imported in one year. Cochineal, saffron, indigo, and other dyes are imported in smaller quantities. The amount of indigo imported of course is small, as India is the largest producer of it, but indigo raising in India is a declining industry, as mineral dyes are not only superseding indigo in foreign markets but competing with it in its own home field. According to the import figures Belgium supplies over 60 per cent of the mineral dyes used in India, but it is probable that in this as in other cases the goods simply pass through Belgium and by rights should be credited to Germany.

As the figures given for the figured and colored goods produced in Indian cotton mills for the same year showed only 28,497,306 pounds of cloth under this heading, it is clear that the regular cotton mills use but a small proportion of the total dyes imported, and that the bulk of them are used by native dyers. Up to 1885 the cotton mills made only gray goods, and where colored borders were needed the dyed yarn was obtained from England. They then began to make stripes and checks, and this departure was later aided by the German dyes that began to come in in large quantities in the nineties. The mills find that they can not size the colored goods as high as they can the gray, and so do not prefer them unless the price is extra good, and over 80 per cent of goods made by Indian mills are gray goods only. Practically all dyeing is done in the yarn, and the mills do not use raw-stock dyeing. This is due to the fact that comparatively small quantities of any one color are used.

INCREASE OF IMPORTATIONS OF DYES.

The amount of dyes imported and used by the native dyers is yearly increasing and the old native dyes are becoming a thing of the past. Before the aniline dyes came into use Indian vegetable dyes were used, but were more costly and troublesome. Some of these gave rich, subdued colors of exceeding fastness and made Indian dyeing famous all over the world. There are those who think all the new dyes are cheap and glaring and say that the introduction of

the cheap, bright, foreign colors has vitiated the natural taste of the Indian, who formerly preferred paler and more delicate tints. They consider the decrease of the old methods of dyeing as an artistic loss, but as a matter of fact it seems that the majority of the old dyes were very crudely made and were no faster than the modern substitute. It was only in certain centers of limited extent that the genuine fast Indian dyes were produced. High-class aniline colors are more beautiful even in shade, and also more permanent, than the best of the Indian vegetable dyes. However, the dyes that are not so fast are in more general use by the common people.

PREFERENCE IN COLORS.

The colors preferred in India vary with each section, and, allowing for individual taste, there are certain colors and shades that are typical of each division of the country. This "local color," as it were, probably owes its origin to the fact of a certain vegetable color being produced in a particular section in large quantities, and then, when the multitude of foreign colors was introduced, the natives selected as the predominant note the shade to which they were accustomed. In Bengal there is less contrast of colors than in most other parts of India, and white with a narrow black or narrow red colored border is the usual costume of the people. In going from Calcutta up country the change in the amount and variety of colors worn is very striking. More shades and louder and more violent contrasts of colors are seen until, at Jeypur, colors run riot. At this place not only are the clothes of every color of the rainbow, and the houses of a crushed strawberry tint, but paint and dye is used wherever possible; the oxens' horns are painted, the elephants' heads are decorated with the brush, the carts are striped various hues, and a good many men dye their beards red.

KALEIDOSCOPIC EFFECTS.

The finest dyeing in India is said to obtain at Alwar, in Rajputana, where a method of double dyeing is practiced, so that a piece of muslin may be green on one side and some other color, say red, on the other. Not only does a scarf so dyed show a different effect where a fold is turned over, but one dye may be seen through the other, giving a kaleidoscopic appearance. Another very fine effect is produced by using warp and filling of different colors, say a purple warp and pale green filling, so that the cloth shows the one or the other color, according to the angle from which seen.

In Assam and the border countries nearly every tribe has one or two colors, the method of extraction and use of which is peculiar to the tribe. Thus, the Nagas possess a peculiarly brilliant red that they use mainly to dye the human hair that floats in tufts from their

spears. The tribes nearest the Chinese border are partial to the blue, which is the distinctive color used throughout China. The Punjab, Amritsar, and Kashmir residents are famous for the brilliancy of the yellow, magenta, and purple colors which they use in silk and wool dyeing, especially those used for women's skirts and shawls. In the central provinces the people prefer a rich dark-red, and in Madras Presidency a full deep-red is the favorite.

PECULIARITIES CATERED TO BY IMPORTERS.

Peculiarities such as these are well known to the importer of dyestuffs, and are catered to accordingly. In importing colored goods the same regard has to be paid to the colors preferred by the various sections. It may be noted also that while the native dyers are partial to foreign dyes that are not too fast for the reasons heretofore given, yet all foreign dyed or printed goods must be fast to obtain a permanent market. This is for the reason that prints and fancy borders, etc., if they fade, can not be renewed as in the case of the native solid dyed fabrics, and since the natives wash their garments nearly every day, because of possessing so few, it is necessary for the colors to be fast enough to stand their rough methods of washing without fading or running.

It is of interest to note that only recently the collector of customs at Calcutta proposed to make stringent regulations against goods that came in marked "fast colors," if it was proved that such colors were not fast. It was proposed to make this departure June 1, 1907, but so many interests protested that it has been deferred until it can be considered by the various interested bodies in India and England, and some decision arrived at as to what shall constitute "fast" color. Some dyes are fast to washing, but not to light, and dyes can be tested for "fastness" in a dozen different ways, so the question is a wide one.

Not only do the colors tend to localize, but the different sects prefer different colors and variations. As a general rule, it may be said that the Mohammedan prefers white or stripes, while the Hindoo prefers vivid contrasts. In the saris the Mohammedan woman prefers white, with a narrow fancy border, while the Hindoo woman selects saris dyed or printed all over, usually contrasts of red, yellow, and purple, with a deep contrasting border.

HOW PATTERNS ARE PRODUCED.

Both the dyer and the calico printer are numerous in India, and they use many and various methods, most of which are very primitive, nearly all very laborious, and a few exceedingly ingenious. In some cases very elaborate patterns, as clear-cut as printed patterns, are produced by piece dyeing with the use of various "resists," which seem

to have been known in India for a long time. Among the common resists are castor oil, beeswax and khakhan oil, lime and gum, and fuller's earth and gum. To produce a white pattern on a colored ground the desired pattern is stamped on the cloth with a resist paste and the cloth dyed. The resist paste being removed shows the white pattern on the dark background. By dyeing once, printing on this a second resist pattern, and dyeing again there can be made patterns with red and white on a black background, and so on.

Dyeing with various resists is known to skilled dyers in all lands, but India practices one form of elaborating patterns by means of piece dyeing without using any resists. That is typical of India alone. This is the method of tie dyeing, sometimes described in connection with the bandana handkerchiefs. In fact, it is frequently referred to as bandana work, but cloth so dyed is known in the vernacular as "chunri."

DESCRIPTION OF BANDANA WORK.

Suppose, for example, it is desired to produce a "chunri" with a black ground ornamented with small concentric circles showing white, yellow, and red. The cloth is folded and refolded until about a foot square and two or three folds thick. Only short lengths can be dyed by this method. The folded cloth is dampened and then pressed down on a design made by pins or small pointed nails stuck upright in a board or block. These leave small raised places in the cloth. The folded cloth is then handed to a girl known as the "bandhani," who does the tying up, and for this purpose allows the nails of her thumb and forefinger to grow long, so as to act as a pair of pincers. With these she deftly seizes the raised portions, grasping the several folds at the same time by means of her long nails, wraps a string around it, thus making a hitch knot, and carries the string on to the next raised place. After all these minute raised places have been tied in this way the dyer takes the cloth and immerses it in a bath of yellow. It is then returned to the bandhani, who makes a second series of tie-ups a little farther down the portions raised up by the first tying. The cloth is then dyed red, a third series of tie-ups made by the bandhani, and the cloth then dyed black. The strings are tied tightly, so the dye does not penetrate beneath them, and each tie-up preserves at that point the ground color at the time of its tying. When the strings are untied and the cloth opened out, there are shown small concentric white, yellow, and red circles on a black ground.

SKILL IN PATTERNS.

By impressing the successive tie-ups on different blocks and by skillfully seizing the minute portions of cloth so that they crinkle in a certain way, very elaborate patterns are produced, which at a little

distance can scarcely be distinguished from embroidery. Squares, stars, flowers, and even animals and human figures are thus reproduced. Some of the bandhani, by continuous work on one pattern, get so skillful that they do the work instinctively and will make elaborate patterns without using blocks at all.

Stripes and zigzag lines are also made by folding the cloth lengthwise and tying patches at the required distances. Sometimes broad stripes are produced, and in other cases an almost invisible hair-line effect is secured. This art is practiced in Gujarat, in Bombay Presidency, and in central India and Rajputana, and also to a small extent in Madras Presidency. Yarn is also dyed in this tie-up fashion by tying bands around portions of a skein at intervals, then tying other bands and dyeing again, etc., after the manner practiced with the cloth as heretofore described. Sometimes the warp and filling are both so dyed by tying at irregular measured intervals bands of varying widths and dyeing various colors. This warp and yarn is woven into a cloth on the loom, or rather on a framework, so as to produce a definite pattern. Each particular point on the filling yarn has to meet a particular point on the warp for the colored pattern to show up correctly, and cloth so made exceeds embroidery in the labor involved, but a weaver duplicating one pattern only gets in time to be expert at it and produces it faster than would otherwise be deemed possible.

LIMITED CAPITAL AND SMALL ESTABLISHMENTS.

While some very fancy dyeing is carried on in India, the major part is simply solid-piece dyeing, and most of it is carried on by very small establishments. There is no such thing as privacy in the East, and it is a common sight to see the dyeing carried on in the little open shops, or even out on the sidewalk itself. After dyeing, a couple of boys will take hold of the ends of the long strips of cloth and fan them up and down until dry or else hang them along the eaves of the houses or along the wall. Most of the dyers are very poor, and some of them, like the weavers, are really employees of men a little better off than themselves, who give them so many pieces to dye, advance them the money beforehand so they can buy the dyes, and only allow them enough out of the work to live on. Like all other occupations in India, dyeing is hereditary with one class of men, and in many places the dyers never teach their daughters certain parts of their trade for fear they may marry husbands that it might not be desirable to take into the craft.

SYSTEM OF IMPOSTS.

COUNTERVAILING DUTIES TO OFFSET IMPORT TARIFF.

The import tariff of India is for revenue only and is usually 5 per cent. India is the market to which, however, England ships the largest proportion of her stupendous cloth production, and in order to interfere as little as possible with the steady flood of gold that is sent to England in return therefor cotton goods are given the lowest rate and only assessed at 3½ per cent. Manufactures of cotton form regularly over one-third of the total imports. In 1905–6 they were $137,524,900 out of a total of $339,933,500, or 40.5 per cent, so this is the lowest rate to which the tariff could be reduced without seriously interfering with a large source of revenue. If English mills had to pay 3½ per cent duty to get into India, this would give the native mills 3½ per cent advantage over them in selling margin. To place Manchester and Bombay on a level in this respect, therefore, a countervailing tax of 3½ per cent is levied on all goods made by Indian cotton mills, whether exported from the country or consumed locally.

Under the provisions of this act each mill has to make sworn returns of the cloth produced each month, and this has to be sent to the collector of customs within seven days after the month closes. As the value of such cloth produced varies at different places and at different times, a uniform value is placed on each kind of goods. This list is revised once a year and new values fixed for the ensuing year. As showing the classes of goods manufactured in India and the general prices, it may be of interest to study this list. The values given herewith were fixed by the governor-general in council in December, 1906, as the values at which goods produced by Indian cotton mills are to be rated for the purpose of levying this excise tax for the calendar year 1907.

The tariff values in annas and pies and the nearest equivalent in cent is given in the following table (12 pies=1 anna; 1 anna=1 rupee; 1 rupee=32 cents):

VALUES FIXED ON COTTON GOODS IN INDIA FOR EXCISE PURPOSES.

Kind of cloth.	Tariff value per pound.	
	Indian currency.	United States equivalent.
Gray goods, plain or bordered.[a]	*Ann. Ps.*	*Cents.*
1. Bed covers, bed sheets, and chadars, twilled, not having borders over ¼ inch.	8 6	17.21
2. Chadars and bed sheets, plain or with borders not over ¼ inch	8 0	16.20
3. Dangari or Kadi cloth	7 0	14.175
4. Dhooties, cholas, dupattas, and lungis, plain or with borders not over ¼ inch.	9 3	18.23
5. Dhooties, cholas, dupattas, and lungis, plain or with borders over ¼ inch, but not over 1½ inches	9 6	18.235
6. Dhooties and patals with headings over 4 inches wide and colored borders	9 9	18.24
7. Domestics, T-cloths, shirtings, long-cloth sheetings not having borders over ¼ inch	8 6	16.21
8. Drills and jeans, plain	8 6	16.21
9. Fents	7 3	14.18
10. Printers	8 9	16.22
11. Printers (bhagavad)	8 3	16.205
12. Shirtings, twilled, unbleached	10 0	20.25
13. Shirtings, twilled, bleached	11 0	22.275
14. Tent, sail, commissariat, and double-threaded cloth (dosuti)	8 0	16.20
15. Zanzibar cloth	8 6	16.21
Figured or colored goods.		
16. Bed covers, quilts, and tablecloths, with borders not over ¼ inch	8 9	16.225
17. Bed covers, quilts, tablecloths, twilled sheets, and chadars, colored warp or weft	9 3	18.23
18. Bed covers, quilts, tablecloths, twilled sheets, and chadars, colored warp and weft	10 6	20.265
19. Ordinary susi check sheets, gray ground	10 6	20.265
20. Bed ticking, plain or drilled	9 0	18.225
21. Chadars, twilled, colored (shawl checks)	11 0	22.275
22. Chadars, not twilled, colored, calico wove, shawl pattern	10 3	20.26
23. Cholis and saris (colored)	12 0	24.30
24. Cotton tweed, commonly called hunting cloth, plain or striped, including leheria, Thana susi, Thana twill, and Thana check	10 0	20.25
25. Other cotton tweeds and English checks, trouserings and coatings	11 3	22.28
26. Drill and jeans, striped	9 0	18.225
27. Drills and jeans, checked	9 6	18.235
28. Drills and jeans, dyed	12 0	24.30
29. Tent cloth, blue and red	9 3	18.23
30. Tent cloth, khaki	10 3	20.26
31. Fents	8 6	16.21
32. Lungis, unbleached, colored, striped and borders	8 9	16.225
33. Lungis, colored	11 0	22.275
34. Napkins, unbleached	9 6	18.235
35. Napkins, bleached	10 6	20.265
36. Susi, ordinary, colored stripes, gray ground	9 6	18.235
37. Susi, ordinary, colored weft	10 0	20.25
38. Ordinary susi checks, gray ground	10 9	20.27
39. Ordinary susi checks, colored warp and weft	11 3	22.28
40. Fancy dobby pattern checks, colored warp and weft	11 3	22.28
41. Flannel pattern susi and dobby susi, gray weft	9 9	18.24
42. Flannel pattern susi and dobby susi, colored weft	10 6	20.265
43. English susi check, gray ground	11 0	22.275
44. Check gumchas and glass checks	11 6	22.285
45. Towels, Turkish, unbleached	10 6	20.265
46. Towels, Turkish, bleached	11 6	22.285
47. Towels, Turkish honeycomb, unbleached	9 0	18.225
48. Towels, Turkish honeycomb, bleached	10 0	20.25
49. Zephyr cloth	9 9	18.24
50. Zephyr, striped and checked	11 3	22.28

[a] For calendered gray goods 3 pies (¼ cent) is added to these values.

Any of the goods specified in the foregoing lists, when woven with borders of silk, are assessed ad valorem.

The following table shows the revenue derived from this excise tax on Indian cotton mills for the years ended March 31, 1904 to 1906, and is of interest as showing the distribution of the mill cloth woven in India:

REVENUE FROM INDIAN COTTON MILLS, 1904–1906.

State or province.	1904.	1905.	1906.
Bombay	$571,807	$662,201	$738,209
Madras	20,201	21,183	35,946
Bengal	3,534	3,865	3,617
United Provinces	28,897	31,334	42,886
Panjab	358	845	1,667
Central Provinces	42,893	46,491	48,496
Berar	5,503	5,792	6,167
Native States of Indore, Mysore, Baroda, Nandgaon, and Bhavnagur	19,022	21,812	.....
Total gross tax	692,229	793,523	904,036
Total net tax	678,828	777,916	892,127

OBJECTIONS TO THE COUNTERVAILING EXCISE TAX.

The imposition of the countervailing tax on Indian cotton-mill cloth is very much opposed by the Indian mills. This is not only on the ground that it is a measure in favor of Lancashire over Bombay, but that the mills in the Native States that are not directly controlled by the Indian Government escape this tax. It may not be generally known, but it is a fact, that goods coming into India not only pay the regular import tariff duty to the Indian Government, but also have to pay another tariff duty upon entering a Native State that is not under the direct control of England. Cloth from these independent Native States not only pays no excise duty but enters British territory free of all taxation, while goods made in British-owned India have to pay a 3½ per cent excise duty and an additional duty on entering the Native States.

EXPORT TRADE.

CHIEF DEPENDENCE ON YARNS FOR CHINA.

In the fiscal year 1906 India exported cotton manufactures to the value of $46,738,620. In the fiscal year 1906 the United States exported cotton manufactures to the value of $52,944,000. India has 5,279,595 spindles and 52,668 looms, while the United States has 23,687,495 spindles and 559,781 looms. India exported more pounds of cotton in the manufactured form than did the United States, but that sent out from India was mainly yarn, while that from the United States was mainly cloth. Of the $46,738,620 of manufactures of cotton exported by India in the fiscal year 1906, $40,136,107 was

yarn, $6,045,426 was piece goods, and the remainder, $557,087, consisted of handkerchiefs, shawls, hosiery, canvas, and sewing thread.

The demand for both yarn and cloth in India is yearly increasing, and the import of foreign piece goods increases correspondingly. On the other hand, the export of Indian mills is increasing faster than their production. This is due to the fact that the bulk of the cloth used in India is light goods and made of yarns above 30s. Indian yarn, while not suitable for making fine shirtings, nainsooks, and jaconets, such as are woven of American cotton and shipped here by the English, is yet well suited for the coarser grades of the "nankeens" woven and worn by the Chinese. Some 40 per cent of the yarn produced by Indian mills is therefore regularly exported, and as the production has increased, this foreign export has more than increased in proportion. The great bulk of this goes to China.

COMPETITION FOR THE CHINESE MARKET.

At one time India supplied considerable yarn to Japan. Starting in 1875 the Japanese takings increased by 1889 to 62,220 bales, but since then it has gradually dwindled to nothing. On the other hand, with the increase of production in Japan, that country has made great efforts to capture the China market from India, and at the present time Japanese yarn, while commanding a higher price than the Indian, is proving a sharp competitor in Chinese markets. The market in China is an ever enlarging one, and Indian yarn, which in low counts is the cheapest in the world, is in great demand and is sold in increasing quantities every year. In 1905 the Indian yarn used in China amounted to 651,870 bales of 400 pounds each. There is a decline at present, but it is only temporary and caused by internal troubles in China. India is also yearly enlarging her yarn markets in other directions and cultivating such fields as the Philippines, Java, Siam, Persia, Aden, Egypt, Abyssinia, and Turkey.

STUDY OF FOREIGN OPPORTUNITIES.

The rapid increase in India's textile exports in recent years has been due in part to an intelligent study of foreign markets. For instance, about 1900 the secretary of the Bombay Millowners' Association collected samples and commercial data in regard to the textile markets in the Levant and exhibited them to the Bombay mills, which promptly began a campaign for this section of the world's yarn markets. At that time the coarse yarns, 4s to 8s, largely imported at Smyrna and other places in the Levant, were supplied by Italy, who had taken the trade from England and had held it for twenty years or more. In less than three years, however, India had almost driven the coarse Italian counts from the market and was shipping more per month than she was per year at the time the cam-

paign started. Indian yarn was followed by Indian piece goods. The great cotton crisis coming on just then forced the Indian mills to curtail, and then, in 1905, the China market was so attractive that it absorbed nearly the whole attention of the Indian mills.

With the present depression in China Indian yarn mills are again studying other fields, and there is talk in Bombay of a combination of mills for holding the Levant and the African trade somewhat along the lines that Japanese mills are now following in regard to Manchuria; that is, for a certain number of mills producing the same yarns to combine and ship so much yarn to these ports every month, whatever the price, and then to share the profit and loss together. This may be done, but Indian mills are extremely jealous of one another, and it is doubtful if they would hold together if the venture did not prove immediately successful.

LOOKING TO THE FAR EAST.

Before the days of the cotton mill the textile productions of India found their best western markets in Asia Minor, Egypt, and Europe. To-day, however, India looks to the East for her textile markets. As Japan is the best buyer of Indian cotton, so China is the best buyer of Indian yarn. In the fiscal year 1905, out of 247,854,797 pounds of Indian yarn exported, China took 229,107,329 pounds, or 92.4 per cent, and in 1906, out of 297,634,314 pounds, China took 282,095,892, or 94.8 per cent. The Indian yarns exported are nearly all 20s, 16s, and 10s, most of the other numbers spun in India being consumed locally. Formerly the main number was 20s, but it seems now to be 10s. Since these yarns are used by Chinese hand-loom weavers to make the narrow Chinese cloth, called "nankeen," the use of coarser yarn, thereby showing a demand for coarser and cheaper cloth, is not a sign of prosperity, and is probably, partly at least, due to the loss the lower masses of the Chinese have sustained in the last few years by the depreciation of the copper "cash," due to excessive mercenary minting by the provincial rulers. The fact of the Indian mills now shipping more 10s than 20s is also in large measure due to the increasing Japanese competition. India supplies over two thirds of the yarn imported into China, and with the increased demand for foreign yarn she is shipping larger quantities every year.

The Japanese yarn, however, is tending to displace the Indian yarn on the higher numbers, and on both 16s and 20s commands a higher price on the market. On 10s the Indian mills have a monopoly. The Indian yarn finds ready sale because it is cheap, but it is more uneven and dirtier than similar Japanese yarn. This is, in large measure, due to the fact that the Japanese mills mix in one-fifth or more of American cotton, or else Chinese cotton, whereas the Indian mills use Indian cotton alone. The better grades of Chinese cotton, such

as "Tungchow," are much superior to the Indian cottons, being whiter, cleaner, and less harsh, and, though shorter, tending more to the silkiness of the American staple.

CHEAPNESS AS A FACTOR.

As both the Chinese and the American cottons are stronger and absorb dye more readily than the Indian, the only reason why yarn spun out of Indian cotton holds the field is on account of its cheapness and the fact that as yet the market is too big for Japan. Japan in her efforts to capture the Chinese markets makes a practice of running her cloth a little heavy and of giving full length or a trifle over in her skeins of yarn, which is a very good policy in starting out to do business with the shrewdest traders on the face of the earth. Indian yarn mills, some of them at least, according to statements of their owners, make a policy of short reeling for the China market; that is, running their skeins a little underlength and spinning about half a number coarser to make the weight come right. This is bound to tell against them in the long run.

The larger Indian yarn mills sell yarn in China and elsewhere through their own agents. The firm of Sir Currimbhoy Ebrahim & Co., which owns or controls the largest number of mills probably of any one company in India, having about 192,000 spindles and 900 looms, has a branch at Hongkong of fifty-seven years' standing, and also has branches at Singapore, Shanghai, Kobe, and other points.

Smaller mills usually sell through the agencies of larger mills or through other export firms. The usual commission is one-half of 1 per cent. This gives them quite an advantage over American mills, where the usual commission charged for selling yarn is 5 per cent. The following table shows where India finds her yarn markets and something of the tendency of the trade. The table includes the three years ended March 31, 1906:

EXPORTS OF YARN FROM INDIA, 1904–1906, BY COUNTRIES.

Country.	1904.		1905.		1906.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
China:						
Treaty ports	116,223,660	$13,181,111	131,475,225	$16,613,685	139,471,240	$18,970,969
Hongkong	119,738,220	13,395,966	97,632,104	12,504,311	142,624,652	18,863,644
Straits Settlements	4,571,632	601,158	6,869,124	1,033,643	6,490,200	993,548
Turkey:						
Asia	4,311,738	476,855	3,898,005	480,826	3,204,200	421,048
Europe	464,710	48,999	614,820	71,942	63,080	7,866
Persia	1,874,894	261,448	2,244,340	366,242	1,444,074	227,540
Aden	1,718,180	214,838	1,285,032	167,934	1,438,112	200,752
Egypt	1,741,040	207,804	1,524,012	199,158	836,800	109,506
Arabia	695,626	96,201	648,535	99,655	818,458	131,498
Philippines	116,525	21,924	120,500	22,203	296,200	43,631
Siam	97,100	14,400	107,600	18,354	292,100	50,307
Abyssinia	96,800	12,275	252,700	37,143	101,200	13,559
United Kingdom	319,788	37,461	251,297	33,731	9,340	1,090
Other Europe	85,770	9,016	336,805	41,711	70,360	9,085
Other countries	418,562	67,144	594,698	112,268	474,296	92,127
Total	252,474,245	28,646,600	247,854,797	31,802,808	297,634,814	40,136,107

It will be noted that, after China, India sells most yarn to the Straits Settlements, Turkey, Persia, Aden, Egypt, Arabia, and the Philippines, and that the takings of the Philippine Islands is steadily increasing. The shipments to the Straits Eettlements are distributed at Singapore to Java, Borneo, Sumatra, Malay Peninsula, Siam, and other points.

INCREASE IN PIECE GOODS EXPORTS.

The export of Indian piece goods is much smaller than that of yarn, but is increasing. On the very coarse unsized goods the hand looms of India have a monopoly, one reason being that the Indian power-loom weaver is inefficient, and another that the cloth desired, like the "nankeen" of China, is required to be soft and yet very strong, and the hand loom is better suited for such work than the power loom. On fine goods, mulls, madapollams, jaconets, light shirtings, etc., the Indian mills, because of the quality of their cotton and the lack of skill and experience of their operatives, can not begin to compete with England. The present local competition is therefore confined to medium heavy goods, such as T-cloths, long cloths, sheetings, and the coarser grades of dhooties.

The average cloth produced by the Indian mills is given by one of the leading managers as being about 52 by 56 and average 22s warp and 30s filling. The majority of the imported goods average above 32s, both warp and filling, and the yarn is much evener and stronger. Indian cloth therefore has to stand fierce competition with the flood of English cloth made of superior cotton, and for this reason Indian mills find it easier to sell their cloth in the foreign markets, to which they have been exporting yarns, than to sell in their home markets.

HOME-MARKET MOVEMENT.

It is probable that hereafter the Indian mills will make a greater effort to capture their own market on some of the medium lines, but so far they have not been able to do so. There is now in progress an agitation called the "Swadeshi" movement, which is practically the same as movements we hear of occasionally, such as "China for the Chinese" and 'America for Americans." The "Swadeshi" sentiment is "India for the Indians," and while its political side can not at present be of serious importance, the materialistic side of it is of a great deal of importance and will undoubtedly have a far-reaching influence on India. This movement came to a focus over the question of dividing Bengal into two provinces, a step that was undertaken by the English for convenience in governing, but that was very unpopular with the people, especially the Bengalese. The agitation was at first directed to boycotting all foreign goods, and this is still attempted in some places, but the leaders realize that this is imprac-

ticable until India can herself produce the articles she wants to replace. There has therefore been a great stimulus given to native arts and manufactures of all kinds, and native-owned cotton mills, machine shops, and other factories have been started in several places. The natives also started steamship lines to run from Calcutta to Rangoon and other places in competition with the English lines, but the latter reduced their fares until they carried natives free and froze out the smaller lines.

In extension of the idea of buying nothing abroad that could be made in India, the Bengalese ordered large quantities of cloth from Bombay and Ahmedabad mills. When the cloth arrived, it was found to be so coarse and inferior as compared with the English that the merchants sustained quite a large loss on it, and several thousand bales were finally sent back to Bombay to be exported. The Indian mills therefore do not at present make cloth suitable to the Indian trade, and it is probable that a large proportion of their output will continue to be exported for some time and the home market be left to England and whatever other nation, say the United States or Holland, that is able to compete therein.

EXPANDING THE CLOTH MARKET.

The fluctuations of the yarn market and numerous other causes are causing more and more mills to add looms, and this tendency just now is very marked. This increased output, for the reasons above given, will probably go in large measure to increase their exports rather than their home takings, and India may be expected to become a larger competitor in the cloth markets of the Far East. It is therefore interesting to note where the comparatively small export of Indian cloth is now sold.

India's best cloth market is in East Africa, where she is displacing English gray shirting and long cloth and American sheeting and drills. Both America and England have increasing sales of cloth in this market, but their increases are not so rapid as those of India, who with cheaper cloth and less freight rate tends to outstrip both. There are a good many Hindoo firms at Zanzibar, and the Indian mills are well represented at all the importing centers. India's next best cloth market is the Straits Settlements, then China, Ceylon, Turkey, and the Philippines.

Nearly three-fourths of the cloth exports consist of T-cloths and long cloths. The T-cloths go mainly to Zanzibar, Mozambique, China, and Abyssinia, while the long cloths go to Zanzibar, Mozambique, Abyssinia, Turkey, and Aden. The Indian T-cloths are 32 inches wide by 24 yards long, whereas the English T-cloths, which compete with

them in China and other places, are usually 32 inches wide by 40 yards long. Aden and Zanzibar are the main ports for the other piece goods shipped, such as drills, jeans, sheetings, and domestics. A small quantity of chadars and dhooties are also shipped to the same points, probably simply for the use of the Indians living there.

EXPORTS TO THE PHILIPPINES.

The Indian cloth exported to the Philippines consists mostly of the coarse cotton goods shipped from Madras and known as "Madras goods," being made of about 12s average warp and filling, the warp being white and the filling a blue, black, or brown and white mock twist. In the fiscal year 1906 India shipped more cloth into the Philippines than did the United States, being exceeded only by Great Britain, Spain, and Switzerland. India will also ship increasing amounts of T-cloths and sheetings to China that will come in competition with American goods. Their cloth sales were increasing rapidly in 1904 and 1905 until the floods at Shanghai damaged large quantities of American goods, which were thereby forced on the market at such low prices that for the time it checked even the low-priced Indian goods. Although much cheaper, the quality of the average Indian cloth is not such that it will be able to seriously compete with American cloth except in places and times where cheapness is the only consideration.

The principal countries to which India looks for returns from her cloth trade is shown as follows for the years ended March 31, 1904 to 1906:

EXPORTS OF PIECE GOODS FROM INDIA, 1904–1906, BY COUNTRIES.

Country.	1904.		1905.		1906.	
	Yards.	Value.	Yards.	Value.	Yards.	Value.
Straits Settlements	13,613,817	$1,413,640	12,446,214	$1,199,943	12,463,079	$1,362,926
Aden	14,626,192	705,298	9,796,416	485,823	11,433,355	586,044
China:						
Treaty ports	1,035,760	48,931	10,018,528	493,849	11,384,743	558,578
Hongkong	82,331	3,609	324,206	13,674	1,916,117	82,981
Ceylon	7,993,379	877,789	8,544,459	1,003,243	8,886,923	1,160,663
British East Africa	7,450,976	336,715	9,069,187	420,964	8,373,843	391,094
Portuguese East Africa	8,646,602	317,176	4,781,102	183,087	6,235,852	289,354
Turkey	3,670,819	157,649	7,546,066	326,278	5,615,542	265,376
Philippines	3,552,631	192,512	5,514,461	295,201	5,505,024	304,667
Arabia	2,748,516	161,785	2,565,377	138,237	3,961,139	212,403
Abyssinia	4,014,025	151,029	7,080,117	284,425	3,863,465	161,385
German East Africa	1,997,879	81,809	2,389,049	111,619	3,267,887	157,069
Siam	1,418,168	70,082	1,385,326	73,258	2,584,717	142,453
Egypt	1,261,729	63,194	1,443,614	77,855	2,263,533	123,876
Persia	1,116,513	62,384	1,519,933	81,802	1,514,587	88,409
Other countries	2,585,792	161,458	3,032,414	161,424	2,705,156	158,148
Total	75,815,129	4,805,060	87,456,469	5,350,682	91,974,962	6,045,426

OTHER MANUFACTURES.

Of the manufactures of cotton other than yarns and piece goods exported in 1906 the total came to $557,087. Of this, $296,533 were handkerchiefs and shawls in the piece, and these were mostly taken by England; $29,990 was sewing thread that went principally to Turkey, Arabia, and Persia; $24,746 was hosiery, pure and mixed, and was practically all sent to East Africa, and $2,690 was canvas, which was mostly bought by Turkey. The remainder consisted of miscellaneous articles that were not enumerated.

In the import of cloth into India, Calcutta takes over twice as much as Bombay, and in the import of yarn it takes a sixth more. In the export of manufactures of cotton Bombay is far in the lead. Of the yarn exported in 1906 Bombay shipped 93.3 per cent, Bengal 5.3 per cent, and Madras 1.3 per cent, with a trifle exported from Sind and Burma. Of the Indian piece goods exported in 1906, Bombay shipped 69 per cent, Madras 29.3 per cent, Sind 1.2, with a trifle only from Burma and Bengal.

CONDITIONS IN BURMA.

HEAVY IMPORTATIONS OF TEXTILES—TRADE IN YARNS.

In 1905–6 of $5,617,449 of cotton piece goods imported into Burma direct from foreign countries, Great Britain supplied $4,479,031, Holland $771,262, and the United States $930. The Burma market is a distant and in some respects a difficult one, but the United States in 1905–6 did not get one-thousandth part of the textile trade that it should. If Holland can do three-quarters of a million in cotton piece goods here in a year, the United States should do at least a round million. Instead of increasing, however, the small imports of American cotton piece goods are decreasing. For the year 1901–2 the value of American piece goods imported was $1,417; for 1902–3, $16,569; for 1903–4, $12,363; for 1904–5, $3,386, and for 1905–6, $930.

The decline has probably been accentuated by the fact that the New York Export and Import Company, the one American company that did a general business here, has withdrawn its branch at Rangoon and turned over the agency to a British firm, who handle no piece goods, and the American representative now makes only flying trips here.

Manufactures of cotton form by far the largest item of merchandise imported into Burma. In the fiscal year ended March 31, 1906, it constituted 29 per cent of the foreign imports, and it sometimes forms over one-third of the total from foreign countries. The total

cotton manufactures imported in the fiscal year 1906 is shown as follows:

MANUFACTURES OF COTTON IMPORTED INTO BURMA, 1906.

	From foreign countries direct.		From India.			
			Foreign manufacture.		Indian manufacture.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Cotton piece goods:						
Gray (unbleached), yards	7,967,295	$391,265	4,749,751	$250,062	10,601,958	$596,261
White (bleached), yards	33,943,501	1,890,822	7,208,447	406,490	3,060,393	206,032
Colored, printed, or dyed, yards	44,229,306	3,335,362	7,910,846	578,810	9,677,386	672,936
Others:						
Thread, hosiery, handkerchiefs, etc		827,068		124,550		155,712
Twist and yarns, pounds	5,220,211	1,344,827	1,264,618	373,438	9,271,281	1,281,424
Total		7,789,364		1,733,350		2,852,365

This gives a total of $8,328,040 of cotton piece goods; $1,107,350 of other manufactures, such as handkerchiefs and shawls, and $2,999,689 of yarn, or a grand total of manufactures of cotton of $12,435,079. The goods mostly imported from India proper are chadars, dhooties, saris, and scarves, with some other coarse cottons, such as Madras goods and Bombay checks.

The cottons imported from foreign countries are shown in detail as follows:

COTTON GOODS IMPORTED INTO BURMA FROM FOREIGN COUNTRIES, 1906.

Articles.	Yards.	Value.	Articles.	Yards.	Value.
Gray goods:			Colored, printed, or dyed goods—Continued.		
Chadars, dhooties, saris, and scarves	503,874	$36,953	Chadars, dhooties, saris, and scarves	18,025,521	$1,438,667
Jaconets	56,220	3,178	Drills	1,128,526	88,078
Jeans, shirtings, and drills	1,558,211	80,885	Jaconets	36,724	3,776
Shirtings	5,327,558	241,745	Prints and chintz	15,478,744	986,328
T-cloths and domestics	435,322	19,983	Shirtings	3,398,367	210,500
Others	86,110	9,521	Others	4,498,330	427,852
White (bleached) goods:			Other cotton manufactures:		
Cambrics, twills, muslins, and lawns	2,971,944	195,944	Canvas	3,818	641
Chadars, dhooties, saris, and scarves	549,286	28,548	Handkerchiefs and shawls	[a] 503,188	21,653
Checks, spots, and stripes	1,441,746	63,864	Hosiery, pure and mixed		219,032
Drills and jeans	582,225	38,235	Lace and patent net	42,875	4,395
Jaconets	4,571,367	294,570	Rope	[b] 5,165	1,308
Long cloths	63,124	4,679	Thread, sewing	[b] 203,129	184,335
Mulls	946,981	51,084	Others	[b] 1,840,253	395,564
Nainsooks	553,712	27,759			
Shirtings	21,930,432	1,162,220	Total, excluding twist and yarn		6,444,635
Others	332,684	23,855			
Colored, printed, or dyed goods:					
Cambrics, twills, and muslins	1,663,094	183,402			

[a] Number. [b] Pounds.

This shows that the short-length goods classed under the head "Colored chadars, dhooties, saris, and scarves" form the largest item of cotton goods imported. Details in regard to these are given further on in these notes under "Cloths imported." The largest single item shown is "White shirtings" and the next "Prints."

The cotton piece goods came from the following countries: Great Britain, $4,479,031; Holland, $771,262; France, $131,335; Belgium, $101,981; Austria-Hungary, $26,000; Germany, $21,525; Italy, $18,294; Japan, $12,561; United States, $930; others, $54,530.

The yarn imported is nearly all dyed, ready for use by the native hand looms in making "lungi," "scarves," etc. This yarn trade is controlled by the United Turkey Red Dyers' Association of Glasgow. The yarn imported during the fiscal year ended March 31, 1906, was of the following description and price:

YARN IMPORTED INTO BURMA, 1906.

Twist and yarn.	Pounds.	Value.	Twist and yarn.	Pounds.	Value.
Gray:			Orange, red, and other colors—Continued.		
26s to 30s	144,210	$25,414	31s to 40s	978,155	$257,238
31s to 40s	67,800	14,175	41s to 51s	630,845	184,726
Orange, red, and other colors:			Above 50s	396,769	152,850
1s to 20s	1,274,497	300,676	Unspecified	186,340	47,518
21s to 25s	1,386,720	326,050			
26s to 30s	154,875	36,178	Total	5,229,211	1,344,825

The above goods were imported from the following five countries:

Whence imported.	Pounds.	Value.
United Kingdom	4,624,064	$1,202,856
Belgium	216,917	41,551
Austria-Hungary	187,600	48,245
France	170,420	43,678
Netherlands	21,210	5,495
Total	5,229,211	1,344,825

CLOTHS IMPORTED.

The cloths imported into Burma are white shirtings, prints, dhooties, saris and chadars, jaconets, muslins, and gray shirtings. About one-fifth of the total is white shirtings. The largest proportion of goods, however, is colored, printed, and dyed goods. The Burmese like gay colors, and colored cloths are worn to an even larger extent than in India proper. Taking a view of the cloth market as a whole, the most marked tendency just now is for cloths resembling silk. The richer classes wear silk, and all the others desire to wear clothing resembling silk as much as possible.

WHITE SHIRTINGS.

White shirtings form the largest single item of cloth imported into Burma. In 1905–6 out of a total of $5,305,305 of cotton piece goods imported direct, $1,162,220, or one-fifth, was white shirtings. The white shirtings imported into this market are nearly all 40 yards long, 34 to 36 inches wide, and made from 32s and 36s yarn. The most popular finish is a soft, fine one resembling the ordinary jaconet finish. Each piece of shirting has stamped at the top the name of the importing firm in English, and underneath this the firm's name in the peculiar round letters of the Burmese. There is pasted on the cloth a gorgeous colored lithograph, then the number of the style is stamped, say, "601," "W 10," "C 1897," "2633" (these are popular styles here), or some such mark, and at the bottom is stamped "40 yards," with ornamental work.

All white shirtings have a number to distinguish them. The name of the mill is never shown on white shirtings, as is customary in America with shirtings, drills, etc. I went through the bazaar at Rangoon with the comprador (buyer) of one of the largest piece-goods firms, and he picked out the four numbers (samples of which have been forwarded to the Bureau of Manufacturers) as the most popular styles on the market at present.

No. 601 is especially liked for its soft, pure-sized finish, and is considered the standard white shirting for this market. It is 35½ inches wide, 40 yards long, 88 by 80 ends per inch, and was retailing February, 1907, in the Rangoon bazaar at 9 rupees 14 annas ($3.20) per 40-yard piece, or 8 cents a yard.

No. "W 10," which is very similar, is 34½ inches, 40 yards, 84 by 68, and retails at 4 annas (8 cents) a yard.

No. 2633 is 35 inches, 40 yards, 80 by 72, and retails at 3½ annas (7 cents) a yard.

No. "C 1897," a little stiffer finish, is 35 inches, 40 yards, 76 by 68, and retails at 3¾ annas (7½ cents) a yard.

No. 872 is another popular design. This is 35 inches, 40 yards, 64 by 64, and priced at 7 cents a yard.

This last piece has stamped on it a fanciful design, in red, of a native riding a tiger at a jump over a stream from which rises the head of an alligator. Above this stamp on each piece of shirting is pasted a lithograph of a bearded Sikh horseman in scarlet uniform, holding his prancing horse with one hand and having a long sword in the other. Such designs help to sell the cloth, and should be in bright colors, and pertain to things with which the native is familiar, such as tigers, elephants, zebras, native cavalry, pagodas, or something similar.

The white shirtings are used for clothing, bed covers, pillows, etc. They are usually packed 40 or 50 pieces to a case.

WHITE DRILLS, JACONETS, AND MULLS.

There is a fairly good amount of white drills imported. These are the satin-weave bleached goods used for outing suits, etc. The most popular piece seems to be one branded "Pure Drill No. 1500," which has a coat of arms as a brand and underneath this, "Registered No. 17135." This is 27 inches, 40 yards, 80 by 64, retailing at 7 annas (14 cents) a yard. Cheap drills retail at 7 to 12 cents a yard.

Other bleached goods imported in quantities are jaconets, long cloths, cambrics, lawns, and mulls. Jaconets come in 10-yard lengths. A good many of them come nicely put up in flat pasteboard boxes, five pieces to a box. Some come in 20-yard lengths. Usually there are 100 10-yard pieces to a case. A popular jaconet is 52 inches, 10 yards, 72 by 72, and retails at 6 annas (12 cents) a yard. Jaconets are worn as clothing by Burmese men and women.

White mulls retail at 8 cents a yard, and come in 10-yard lengths. A popular mull is 45½ inches, 76 by 68.

Doria is a bleached goods made with a 4-leaf twill ground and satin stripes. It is usually 31 inches, 84 by 96, and retails at 12 cents a yard. A small amount of this is used as coats for Parsees, etc.

CASHMERES, CREPES, LAWNS, AND LONG CLOTHS.

The white woolen cashmere on the market retails at 1 rupee, or 32.4 cents, a yard. The usual width is 42 inches, 64 by 64 ends per inch. A cotton cashmere 54 inches, 72 by 108, retails at 13 annas (26 cents) a yard.

A cotton crepe that is imported from India, especially from the Buckingham Mills Company, at Madras, and is largely used for toweling, is bleached goods, and is 28 inches, 24 yards, 64 by 44, retailing at 7½ cents a yard.

A considerable quantity of white lawn is imported, which sells from 2 rupees (65 cents) per 10 yards up. The lengths are all 10 yards. The most common lawn is 42 inches wide, 80 by 60 ends per inch, and retails at 8 cents a yard.

White cambric retails at about 8 cents a yard and is mostly 35½ inches, 88 by 64.

Long cloth, like the ordinary white shirting, has a tinsel woven heading made of a few repeats of tinsel picks and a few heavy picks. It is put up in 40-yard lengths and a common construction is 76 by 68. The width is 36 inches and price 4 annas (8 cents) a yard.

WOVEN LUNGIS.

Colored "lungis" are one of the largest imports of piece goods. This is spelled in various ways, "lungis," "loongies," "loongyis," etc.

It is a garment worn by men. It is worn as a skirt, differing from the Indian "dhooty," which is a loin cloth.

The natives have an idiosyncrasy about the way they want these skirt cloths made that is worth noting. The finished width desired is 46 inches, but they do not want the cloth woven 46 inches wide. The cloth is woven 23 inches wide, 154 inches long, and then cut in two and sewed together, making the finished garment 46 inches wide and 77 inches long. Why they should want it this way is strange, as the seam does not usually show, but it is a fact that the 46-inch widths, of which there are some also imported, are not nearly so popular as the 23-inch widths that have to be cut and sewed together after buying. The only explanation given is the conservatism of the Burmese, which equals that of the Chinese. The old hand looms of Burma could not weave 46-inch goods, so the cloth had to be woven in half widths and the custom thus started is still clung to by them. This garment, like most Indian and Burmese garments, is worn without any modern fixings, such as buttons, hooks, or other fastenings. It is simply folded around the body and the end tucked in on the right-hand side.

MANNER OF WEAVING.

It is usually woven so that the back shows a different color from the front; usually a darker color. As an illustration of this take one of the common patterns, say, 76 by 48 ends per inch. The warp is arranged 32 ends of red, 4 of white, 32 of red, 2 of white. The selvage border—some are made with a selvage border and some not—was in this case 22 white ends (the 4 outside threads run two to a heddle eye), 4 black, 2 white, 56 black, being the same on both edges. The regular filling pattern was arranged to pick 26 red, 4 white, 26 red, 2 white. The darker filling pattern was arranged to pick 22 black, 2 red, 22 black, 2 white, 2 black, 2 white, 2 black, 2 white. There were 6 repeats of this, then 144 ends or 3 inches of black, and then 6 repeats again. This gives about 20 inches of the darker weave. Considering the 154-inch length bought by the Burmese, the cloth shows 10 inches of the lighter woven cloth, then 20 inches of darker woven, then 94 inches of the lighter, 20 inches of the darker, and 10 inches of the lighter color. This cloth, 23 inches wide, is cut in two after purchase and sewed together so the dark stripes fit. The finished garment, therefore, 46 inches wide by 77 inches long, shows 10 inches light color, 20 inches dark color, and 47 inches light color. As the garment is folded from the right around the back, brought around the front, and tucked in on the right side, this is why the lighter colored portions are of unequal lengths. This style of lungi, which is the regular style of skirt lungi worn by the Burmese, is

often called a "sarong;" in fact, when shipped in this length this, according to the importers, is the correct name for it.

Each piece of 154 inches is folded into about 5 inches by 12 inches and tied near each end with a few strands of red yarn. Twenty of these pieces are tied together in a bundle, or as it is technically known, a "corge." This is the shape in which the Mahommedan wholesaler, who obtains it from the foreign importer, sells it to the bazaar stall keeper, and the wholesale market price is based on this "corge" of 20 pieces. A case contains 20 "corges," or 400 pieces, which is about 1,700 yards. An average price is about 1 rupee (32.4 cents) a 23 by 154 inch piece, or 400 rupees a case.

Another form in which this "lungi" is put up, in which shape it is referred to as a "lungi" instead of a "sarong," is in 12-yard lengths, about 120 to a case. Every 2 of the 12 yards are woven like the half length of the sarong already described, and a few white picks show where the cloth is to be torn apart to make separate lungis. In the 12-yard lengths the cloth is usually woven wider, so that each piece makes six lungis. The widths run 38 to 46 inches for men. As before stated, however, they are not near as popular as the 23-inch widths that have to be sewed together. Some 36-inch widths are imported for women's use, but these are mainly the Burmese women, while the "saris" is the garment the Hindoo women mostly use. For children the lungis are imported in three standard widths, 24, 27, and 30 inches, and sold in 3-piece lots at 5 rupees 8 annas, or $1.78 (present market price).

PREFERENCE FOR GAY COLORS.

The Burmese, more than the other inhabitants of India, prefer gay colors, and especially red, purple, and green. The lungis are almost entirely checks and plaids with a predominance of red and green, and with black, white, or purple lines forming the design. A small check at the present time (March 25) very popular is constructed 6 red, 2 black, 6 red, 2 green, being the same both ways; another pattern is 12 white, 10 red, 8 green, 10 red, 12 white, 12 black, 60 white, 12 black, 2 yellow, 32 red, 2 yellow, 12 black, 60 white, 12 black, 12 white, 10 red, 8 green, 10 red, 12 white, 60 red, 24 green, 60 red. The first is a lungi 39 inches by 12 yards, 80 by 68 ends per inch, and 11 cents a yard, or 22 cents a lungi of 2 yards. The last was a 23-inch sarong, 154 inches long, 76 by 48, and bringing 1 rupee 2 annas, or 36 cents, which is about 8.4 cents a yard.

Printed cotton lungis are not as well liked as the woven. When worn by the men, they are mainly satin woven, say, 84 by 120 ends per inch, and with flowered designs. The check and plaid designs are

erred for ordinary wear, and the flowered printed satin lungis

are only used in place of silk for special occasions. The price will run as high as 25 cents a yard.

Ordinary grades sell for 8 to 9 rupees per 12 yards, which is 21½ to 24 cents, but the market is considerably overstocked with printed lungis just at present, and they are being sold at half price, or 4 rupees apiece, which is about 11 cents a yard. The cheap, plain-printed lungis are only worn by the natives who come from India, the Burman wearing the satin prints when prints are worn at all.

A woman's lungi is 1¾ yards and a man's 2 yards long. A 12-yard piece makes 7 of the former or 6 of the latter. Men's are mostly 40 inches wide, and women's 36 inches.

SARI WORN BY WOMEN—CHECKS AND BUCKRAMS.

The sari is the women's garment, corresponding to the lungi worn by the men. It is usually 7½ yards long. It is worn as a skirt by the native women of India, but not by the Burmese women, who use the women's lungi. The men's lungis are almost invariably plaid and check designs, but the women's "saris" have a deeper border, more elaborate designs, and more variety of colors. The difference between the women's lungi and the saris is that the lungi for women is worn as a skirt, hanging straight from under the arms, and is usually about 1¾ yards long, while the saris is used to fold around the whole body and to bring up and cover the head and face, and is 5 to 7½ yards long. A common sari is 40 inches, 7 yards, 60 by 44, and sells at 56 cents apiece.

Checks are imported in fairly large quantities, mainly from India, and used as men's coats. A common check is 27 inches, 72 by 52, and retails at 8 cents a yard. A few cotton-raised woven checks are imported, being woven checks that have stripes scratched by machinery so as to raise a nap. These are also used for coats.

Buckram comes mostly 24 inches, 40 by 40, and retails at 14 cents a yard for brown or 12 cents a yard for white or black.

HOLLANDS, CRETONNES, GAMBROONS, TICKINGS, AND GRAY SHIRTINGS.

Of the Hollands imported the most popular is a 28 inch, 52 by 48, fabric retailing at 3½ annas, or 7 cents, a yard. This has white warp and mock-twist blue and white filling and is used for men's coats.

Cretonne is used for door curtains, hangings, etc., flowered red and yellow designs on a green ground seeming to be most common. A usual piece is 42 inches wide, 48 by 32, and sells at 8 annas, or 16 cents, a yard.

Gambroons used for door hangings, for making men's coats, and especially Punjabis. It is a heavy, plain-woven fabric, using mock-

twist filling and with 2 warp ends to a heddle eye, 2 blue and then 2 black, etc. A usual width is 26 inches, construction 56 by 56 ends per inch, and price 4 annas, or 8 cents, a yard.

The ordinary ticking for mattresses is imported to a small extent. The blue-striped ticking is the most common. A 36-inch, 80 by 40, retails at 12 cents a yard, a common pattern being 2 blue, 2 white, 2 blue, 3 white, 8 blue, 3 white, 2 blue, 2 white, 2 blue, 10 white warp ends in a repeat, and all white filling. A cheaper grade of ticking sells for 8 cents a yard.

A good amount of gray shirtings is imported and sells at 6 to 8 rupees ($1.95 to $2.60) per piece. The widths are 36, 38, 42, and 46 inches, mainly the 36-inch, and the lengths are 37 to 38 yards. Any length over 38 yards is not counted in paying.

MUSLINS, CHADARS, AND DHOOTIES.

Book muslin is a very coarse fabric, 35½ inches, 36 by 28, coming in 10-yard lengths, that is used to some extent as shirt waists by the native women. It is imported 10 pieces to a bundle and 200 pieces to the case, and retails at 1 rupee 1 anna, or 27 cents, for 10 yards. Most of it is white, but some colored, chiefly blue.

Art muslin is also imported for use as door and window curtains, draperies, etc., and is mostly 37½ inches, 60 by 40, retailing at about 12 cents a yard.

A "chadar" is simply a gray shirting cloth that comes in retail lengths. It is used as bedclothing, and by the poorer classes as a garment somewhat like a lungi, but is wound around the waist and then carried up over the head, protecting the whole body. An ordinary chadar is 50 inches wide, 52 by 48 ends per inch, and retails at 12 annas, or 24 cents, per 2½-yard length. Pieces come put up in 5-yard lengths, but with cut marks between. At each end of a 2½-yard chadar is a heading of a few picks of coarse filling and three or four picks of red; also on each edge is a border made of a few alternate picks of coarse and light filling.

A dhooty is in India usually a loin cloth for men. In Burma it is used for this purpose and occasionally for skirts for some classes of women, especially Madras women. The usual dhooty is plain with a narrow red selvage and red cut mark. A popular width is 42 inches, construction 68 by 68, and price 1 rupee, or 32.4 cents, per 5 yards. The cloth comes 10 yards, with cut marks showing it to be a double length. Another common dhooty is plain, without colored borders, 44 inches wide, 3 yards 22 inches long, weighs 11½ ounces, and retails at 24 cents per piece.

COTTON PRINTS, BLANKETS, UNDERSHIRTS, AND TOWELS.

The cotton prints used are all 32 inches by 24 yards. A 30-inch print is favored in Japan; the American 24-inch print is largely used in the Philippines, but only a 32-inch print will suit in Burma. These are all supposed to be 32-inch, but by actual measurement I found them to vary from 31 to 33 inches. They are all 24 yards long and are put up 60 pieces to a case. The constructions run from 16 by 14 up to 18 square per quarter inch. The yarns are 28s and 32s up to 32s and 40s. Fine cambric prints using Egyptian yarn run about 22 by 24 ends per quarter inch. A "lungi" print is 36 to 38 inches wide and 12 yards long. This print is put up 120 pieces to a case. The cases are always tin lined. Most of the prints are used for women's skirts and are cut up into 1¾ yards when sold. Prints are bought by the importer in three-case lots; not under. In England a printer will not set up a pattern or change his color for less than three "lumps" of 120 yards calico each. A smaller quantity would not pay for the trouble. A lump of 120 yards will make 5 pieces of 24 yards each, which gives 15 pieces as the minimum to a color or design. As there are 180 pieces in a three-bale lot, this limits the number of patterns to 12.

Cotton blankets are imported in considerable quantities. They come packed 300 to a case and are sold by the importer in 10-blanket lots. The market price between importer and native wholesale merchant is based on this. At present the price is 7 to 9 rupees, say $2.25 to $3, per 10 blankets. The blankets are nearly all 48 inches wide and the lengths from 60 inches up, a usual length being 78 inches. Red blankets are the favorite and retail at about 1 rupee 2 annas each, or 36 cents. Similar woolen blankets retail at 75 to 80 cents. The end stripes are mostly black on red and yellow, and blue stripes on gray.

Cooton undershirts are mostly bleached and come from Spain and Germany. Prices range from 2 to 14 rupees (65 cents to $4.50) a dozen, but the cheap shirt, say 4 rupees a dozen, is the one most bought by the native.

The single towels are mostly Turkish or huckaback, while the Japanese towels are in pairs, 12 pairs to a bundle. Ordinary small towels retail at 4 to 8 rupees ($1.30 to $2.60) per dozen pairs. The white Turkish towels, 45 by 22 inches, retail at 20 cents each.

AMERICAN CLOTH AND DRILLS.

It is significant of the slight amount of American goods on the Indian and Burmese market that the tariff for India refers to one

kind of cloth as "American" colth. By this is meant "Peperell Jeans," the jeans made by the American company of that name. This is in fact practically the only kind of American cloth well known in India. It retails at present at Rangoon at 4 annas 2 pies, or 9 cents, a yard.

The gray drills imported come from England, with some from India. They are 28 inches wide. The Burmese market prefers this width, and 30-inch drills do not sell as well. The length is 40 yards, and the price 6 to 8 rupees a piece, or, say, 5 to 8½ cents a yard.

Khaki drills sell at 8, 10, and 12 annas, or 16, 20, and 24 cents, a yard, according to quality and finish.

The regular Indian tariff applies to Burma also. The duty on most articles is 5 per cent, but on cotton piece goods the rate is 3½ per cent. The cotton goods are specified by name in customs circular No. XIV, issued December 21, 1906, by the government of India.

POPULAR TASTE VARIABLE.

In cotton piece goods the import trade is practically a retail trade and relatively few lines of goods are imported in wholesale quantities. In prints, for example, a three-case lot will contain as many as twelve designs; a bale of "lungis" may have twenty packages, each of a different color or pattern, etc. Not only is it in this sense a retail trade, but there is no stability to the market, since the tastes of the people are continually changing, and within their limits the Burmese are as eager to keep up with the latest style as is a Parisian. In Burma, however, the cut and style of the clothing is fixed, and this restlessness takes the shape of running after new patterns and new finishes. In "lungis" a merchant may introduce a small green and red check; it strikes the popular fancy, becomes the rage; the merchant sells every yard he has at a good profit; his competitors wire for similar goods to be made up, and the demand seems insatiable. Suddenly another merchant throws a purple, white, and pink barred design on the market. There is a rush for this, and the green and red check is forgotten. Perhaps before the change it is selling at 8 rupees apiece; afterwards it drops to 5 rupees. If there are large shipments of this on the way, on arrival they are out of demand, and perhaps sell at half price. So it goes, first one pattern and then another having a run.

DIFFICULTIES WITH FINISH.

In the finish it is the same. A year or so ago lungis, saris, etc., were finished with an ordinary starch finish. Then a demand arose for a mercerized finish in imitation of the silk goods worn by the richer classes. To-day the regular finish is sold at a heavy discount,

and to bring the market price all goods have to be "silk finished" or "mercerized." It is so referred to by the shopkeepers, but as a matter of fact to make the regular mercerized goods the yarn itself is usually mercerized, which would make too high priced a cloth for this market. The finish is really a fine "Shreiner," made by using a fine-lined steel roller, which gives a fine silk-looking, medium stiff-finish piece of goods. This is all the go now, but the taste may change at any time. In the "lungis" there is usually a half-inch selvage stripe woven of some dark color on each edge of the goods. Sometimes a demand springs up for a white selvage border and again for no selvage stripe at all. Other instances might be given to show the frequent changes in popular taste. Once the demand changes, the old goods are as unsalable as last year's Paris hat. From the foregoing a slight idea is obtained of one reason why this is a rather difficult and unsatisfactory market.

MANUFACTURERS MUST BE VIGILANT.

In Manchuria the people wear American 2.85 and 3 yard drills from January to December, and to hold the market the American manufacturer has simply to make the same kind of goods he has been making and not allow the quality to deteriorate. To win a foothold in the Burma market, however, a manufacturer has to use more brain work, to be more wide-awake and enterprising; and to hold his ground when a foothold is gained, he has to sleep with one eye open. In piece goods it will be very difficult for the United States to get much trade, for four reasons, viz, (1) the lack of direct steamships to New York; (2) the lack of an American bank; (3) the character of the market, the quick fluctuations, and long time demanded; and (4) the variety of designs demanded in small lots.

These are difficulties that have to be considered, and from my inspection of the bazaars and talks with native and European merchants it seems a rather difficult market, but one in which there is yet room for the right man with the right goods. On the very coarse goods, using 6s to 16s yarn and up to 20s warp, mainly coarse goods from Madras for the poorer classes, America can not compete, because the cheaper, coarser Indian cotton that is employed is satisfactory for the purpose and the labor cost of manufacture is also cheaper. On mulls, lawns, etc., few mills in the United States have as yet a large enough output of these goods to compete, and the English finishes are difficult to equal.

There are some goods on which the United States can compete in regard to price and quality. The market after all is not very large, some $6,000,000 to $8,000,000 a year, but by properly directed efforts the United States could probably get $1,000,000, or perhaps more, out

of it. Last year the Netherlands shipped here $771,262 of cotton goods, and if the Netherlands can do that the United States, which grows the cotton, certainly ought to be able to get at least $1,000,000 from the trade.

FEAR OF AMERICAN COMPETITION.

The buying for Burma is not done at Rangoon, but in London. American oil machinery and piping are bought in London from agents of New York firms, and the material is shipped to Liverpool and transshipped there for Rangoon. Most of the larger importing houses at Rangoon are simply branches of London houses and in charge of a junior partner or an agent, while the real control of the business is centered in the hands of the senior partner in London. With most of the importing houses at Rangoon there would not be much chance of an American drummer doing business unless at a materially lower price than the same goods can be bought in London. Most of the English firms are very conservative, and are jealous of any other nation getting a foothold here, seeming especially to fear American competition. A few of the firms are more progressive, and recognizing the popularity and superiority of American goods on certain lines are willing to handle them wherever the price allows competition with those of other nations.

The Italian Colonial Company, of Trieste, is one of the largest piece-goods importers and is willing to buy goods regardless of country of origin, the character of goods, prices, and terms being the controlling considerations. Under prevailing circumstances, when the jealousy of the majority of the English merchants makes uphill work for the agent of American goods, it will probably secure quicker returns if the goods are introduced through a well-established firm. If an agency is placed in the hands of a local importing house in this way, they will keep the American house informed as to the market variations.

PATTERNS FOR PRINT DESIGNS.

Patterns for print designs, etc., must be forwarded by local agents and printed in accordance therewith by manufacturers. These designs are produced locally, frequently copied from the latest patterns on silks, or chosen from patterns sent out from England. Very rarely is as much as a case ordered of any one design, and even then it will be ordered in two or three colors. Usually in a three-case lot of prints there will be eight to twelve varieties either in design or coloring. American houses have quoted assorted lots here, but the importers say that the lots as assorted were fixed and they could not get them to change. For instance, the American firm would submit

twelve samples as contained in a three-case lot—nine pieces of each kind. Perhaps four of the samples would be entirely unsuited to the Burmese market, but the other eight were all right, and the importer would want the three cases made up of the eight designs in varying number of pieces, say, nine of one, eighteen of another, etc., and perhaps one design in a different color. The American would decline to make the required changes and the order would be promptly snapped up by an English mill. As elsewhere noted, the English printer declines to print under 360 yards (nine 40-yard pieces) of any one design, but otherwise will make up cases as desired, and to get a foothold in this market the American manufacturer would have to do likewise.

IMPORTANCE OF BAZAAR SYSTEM.

The bazaar system holds an important place in the Burma trade and has to be considered. In Manila and Singapore certain streets containing clusters of small shops are referred to as bazaars, but in Burma the system is different, as the "bazaar" is contained in one large building. The bazaar buildings at Rangoon, Mandalay, and other places are built by the municipalities and rented to stall holders at a fixed rental. At Rangoon the bazaar building is a large one-story frame structure. The stands or stalls are raised platforms, about 2 feet above the dirt floor, and have lids and locks, so that the cloth can be locked up underneath at night. At the back of each stall, dividing it from the one on the other side, is a partition with shelves. The cloth is stacked here during the day and the shopkeeper sits crosslegged on the platform and exhibits pieces as desired. Narrow aisles cross each other about every 20 or 30 feet, and the building is not very well lighted. Thousands of dollars' worth of goods are kept here, and this is really the head and center of Burmese trade. Separate sections are assigned to each commodity—yarn, cotton goods, silk goods, hardware, jewelry, etc.—and the dealers in each commodity congregate in their respective sections. This has the effect of concentrating and to a certain extent unifying the trade in each line. Early each morning the importer or his comprador (buyer), if handling cotton piece goods, for instance, makes a tour of the piece-goods corner, ascertains if any new lines have been brought out by his competitors, what has been the buying tendency the previous day, and the market prices. He thus keeps an accurate tab on the market requirements far better than he could if the same shops were scattered all over town. Each stall keeper makes a specialty of some one thing. Thus a man will sell lungis and nothing else, the next man sheetings, and shirtings, the next only prints, etc.

The importers, as a rule, do not sell to the stall keepers, but to the wholesale native shops, which are mostly run by Hindus or Mohammedans, and in a few instances by Burmese. These shops also specialize. One of the largest I investigated sold only dyed lungis. On one side of the shop were great piles of men's lungis, 38 to 40 inches wide. On the other were lungis for women and children, women's 36 inches wide and children's 24, 27, and 30 inches wide. All these were folded and in 12-yard lengths. At the end of the shop was exhibited woven sarongs, which is a peculiar lungis woven 23 inches wide and afterwards sewed together to make lungis for men. These were in "corges," or bundles of 20 pieces, each 154 inches long.

SMALL MARGIN OF RETAIL PROFITS.

These people buy from the importer on sixty days' time and sell to the bazaar people on sixty, ninety, or longer time. The prices I obtained showed a very small difference between wholesale and retail prices, so their profit can not be large. An importer said that if he sold lungis at 3 rupees 12 annas ($1.54) per 12-yard piece he usually found it retailed in the bazaar under 4 rupees, say $1.58 to $1.62, or less than 5 per cent difference, and very often only 2 per cent difference. Several times where I obtained "office" prices from an importer and then priced the cloth in the bazaar I found only 2 annas, or 4 cents, difference per 12-yard piece, and in some cases the price was actually the same. The competition is usually very close, so that even an eighth of a cent a yard difference in the landed price may decide the question of profit or loss.

The bazaar building at Mandalay is much finer than that at Rangoon. It was recently erected, and is well adapted to its purpose. The building is of brick and stone, with tiled floors, 6-foot aisles, and cement elevations or platforms. The tiled roof is supported by iron I beams. The building is divided into four parts, separated by driveways, and each building is devoted to a separate class of commodities.

In the bazaars the predominance of women is very noticeable, and the women do a large share of the business of Burma. Contrary to the usual custom of the East, and in peculiar contrast to the Chinese and Hindu women on either side of her, the Burmese woman for practical purposes is the head of the family and very often the main breadwinner. Even where she does not carry on the business herself, important transactions are usually submitted to her for approval before consummation. She makes a pleasant, efficient saleswoman, seems to have a much keener business instinct than the Burmese

EXTENT OF COTTON RAISING AND EXPORTS.

Cotton is raised in the central valley of the Irrawaddy, but the total crop is small, and the area under cultivation represents only some nine-tenths of 1 per cent of the total area under cultivation in India. Myingyon, Meiktala, Sagaing, and Thayetmyo receive the bulk of the marketed crop.

The exports for the past five years, including those to India proper, as well as to foreign countries, have been 10,256,512, 15,233,232, 13,396,768, 8,580,880, and 15,462,720 pounds, respectively. In the fiscal year 1906 the exports of cotton were to the following countries:

EXPORTS OF COTTON FOR LAST FISCAL YEAR.

Country.	Pounds.	Value.	Price per pound.
			Cents.
Japan	5,057,248	$454,555	9.0
India	4,426,128	322,991	7.3
Great Britain	3,526,656	278,975	7.9
China (Hongkong)	2,366,896	184,494	7.8
Other countries	85,792	7,133	8.3
Total	15,462,720	1,248,148	[a] 8.07

[a] Average.

This shows that the high-priced grades go to Japan, which takes a third of the crop, and that the remainder goes to India, Great Britain, and China, with a few bales to Germany, Italy, and Austria-Hungary. The government estimate for the present Burma cotton crop (1906–7) shows 186,202 acres, as against 189,000 acres last year, and the estimated outturn of clean cotton is 35,303 bales of 400 pounds each as against 37,000 bales last year.

A well-known firm at Rangoon has carried on experiments with several varieties of American seed with a view of improving the staple and quality of the cotton grown. Other private parties are experimenting with Pernambuco tree cotton, and others are trying to improve the indigenous variety of cotton. The government is also doing work along the same line. Despite a claim of some improvement here and there, the experiments so far have been of little value, and until the quality can be improved sufficiently to allow of a higher price there is no prospect that the cultivation will be extended.

A TYPICAL YARN MILL.

CHARACTER OF BUILDINGS, EQUIPMENT, AND EMPLOYEES.

Cotton manufacturing is an international industry that is continually enlarging and in which the methods of manufacture are continually improving. No one nation has a monopoly of the best

methods, and every manufacturer is interested in keeping in touch with what is being done by his competitors, whether at home or abroad. Methods of operation and styles of machinery that are suitable for one place are not always suitable for another, but everywhere the result desired is the same—a maximum of production at a minimum of cost. To note various methods used to obtain this result is of interest. A somewhat detailed description of an Indian yarn mill may not, therefore, be out of place.

The Kohinoor Mills Company, of Bombay, may be taken as a good type of the successful Indian yarn mill, both in equipment and method of operation. This is a 39,000 spindle mill making yarn chiefly for the Chinese trade. During 1906 it made 2¾ lakhs of rupees (about $91,000) on a capital of 1,600,000 rupees, or 17 per cent, and it has averaged about 2½ lakhs every year. American mills are usually constructed on the "slow-burning construction" principle, with heavy wood columns and beams, but the Indian, like the English mills, are constructed on the "fireproof" principle, and as little wood is used as possible.

DESCRIPTION OF CONSTRUCTION.

This mill is situated in a large compound surrounded by masonry walls topped with broken glass and with a watchman at each gate. The main mill is five stories high, 384 feet long, 104 feet wide, and is divided in the center by the double walls of the main drive from the engine room situated at the back. The mill walls are strengthened with pilasters and are very heavily built, in accordance with the requirements of the Indian factories act.

Cast-iron columns are used and these are spaced 11 feet lengthwise, while across the mill the bays are 15 feet in the middle and the outer ones 18 feet. Running across the mill steel I beams rest on the top of these columns. To allow for expansion and contraction, which is very necessary in this climate, the holes for bolting the I beams to the flanged heads of the columns are always made slotted instead of round, and for the same reason a 4-inch space is left in the brickwork at the ends of the beams. These large I beams support smaller I beams running longitudinally of the mill. These are spaced 2 feet apart and between each is built up a brick arch abutting at each end on a curved brick resting on the bottom end of the I beam. On top of each beam is a small wooden beam to the height of the brick arch, and powdered brick and cement are used to fill in to make arch and beam one solid level mass. The floor is then laid crosswise, being nailed to the wooden beams. This gives a fireproof floor and is the standard construction in India.

PROTECTION AGAINST FIRE—WAREHOUSE ARRANGEMENTS.

Though the building is fireproof, sprinklers are used throughout. Exposed rectangular steel tanks are located on a brick tower run up some 20 feet above the roof.

It is to be noted that all the brickwork, both outside and inside, is carefully plastered. This has to be done because of the severe climatic variation, which causes exposed brickwork quickly to crumble and disintegrate. Nearly all Indian mills are so plastered or stuccoed. Most Indian brick, which cost only some 12 rupees, or $4, a thousand, best quality, are poor in quality as well as cheap in price and absorb moisture readily. The roof rises in three peaks and is covered with tin. Some mills, however, use a flat cement roof with parapet, and in very hot weather this is flooded with water and proves a most efficient aid in making working conditions more bearable.

The cotton is stored in a separate one-story building constructed of rubble masonry, and is 25 feet high, with corrugated-iron roof. This building is divided into three compartments by masonry walls and fireproof doors. In the first is a bale press, where the 10-pound bundles of yarn which are delivered through a chute from the third floor of the main mill are put up into 400-pound bales. Each 10 pounds is in a paper-covered package, but an extra sheet of paper is laid on the top and bottom of the bale and a good quality of 30-inch 8-ounce burlap wrapped around this. Four 1-inch orange-colored ties are used and 1½-inch wood strips placed under the ties at each corner of the bale; also each buckle is wrapped with a small piece of burlap to prevent its catching on other bales. The finished bales were stacked up in this room.

NEATNESS IN STORAGE—STACKING THE BALES.

The middle compartment was for cotton storage, and the bales were stacked up in piles 20 feet high. A very noticeable fact was the neatness and closeness of the stacking that was permitted by reason of the uniform size of the square condensed Indian bales. There was twice as much Indian cotton contained in this compartment as would have been possible in the case of American bales, to say nothing of the fact that the insurance companies in America considered the American bale too dangerous to permit of one bale being stacked on another.

The third compartment was used for an opening and mixing room. There are many different kinds of Indian cotton, of varying quality, staple, and price, and an Indian mill would never think of using the same mixing for 20s as for 10s yarn. Frequently even for numbers as close together as 10s and 12s entirely separate mixings are used.

All bales on arrival at mill are stacked in separate piles and a memorandum kept of the staple, grade, and price. To make a mixing for 10s, for instance, the mixing may be of three different varieties, so the resultant mix gives a cotton of certain spinning qualities and of a calculated price per pound. To know the proportion of different cottons to use in order to secure good spinning for various numbers is one of the manager's most important qualifications. Three willows were used in this room and the cotton blown over through a pipe into the blow room of the main mill. This mill produces about 26,000 pounds of yarn a day, and to open and mix the cotton required and to handle the bales ten coolies are employed at about 10 to 12 rupees a month (say, 10 to 13 cents a day). Each mixing is kept in a separate bin and delivered through the willow and suction tube to the blow room as required.

MACHINERY AND OPERATIVES.

The picker or blow room, as it is called, contains four vertical openers and seven lines of scutchers. An opener is capable of supplying three lines of scutchers, so one is usually idle. Indian cotton is much dirtier than American and requires more thorough cleaning. The Crichton vertical opener is almost universally used in India and consists essentially of a tapered vertical beater surrounded by vertical grids. Some machines have one and some two beaters. The cotton is delivered inside the grids near the bottom and forced up and out near the top by an air current. As it rises it is struck by the beater blades and the motes and dirt thrown out between the grids. From the opener the cotton goes to the picker, then to the intermediate and finisher lappers (called by the English "scutchers"). Including the willow, the cotton, therefore, passes through five machines from bin to lap and is struck by five beaters. For similar coarse numbers in the United States most mills use only three machines—picker, intermediate, and finisher lapper—and subject the cotton to only three beatings.

That the Indian mills using such dirty cotton are able to run their spindles at as high a speed and to make the profits they do is owing to their careful preparation. Among the leading managers it is an axiom that the card should never be used to remove dirt, and that the finished lap must be free of dirt and leaf. Some managers claim that the best mills in India pay more attention to careful preliminary preparation than is done even in England. The additional machinery makes the first cost slightly higher and takes more horsepower, but pays for itself in other parts of the mill.

Machinery from Oldham, England, was used throughout this mill. Three-blade beaters were used, and the laps on picker, intermediate,

and finisher lappers were 44, 42, and 40 inches wide, respectively. This gradual reduction gives a uniform lap with smooth edges. The lap made on finisher lapper weighed 37 pounds per 48 yards. There were employed in the blow room eighteen men at about 10 rupees a month (10 cents a day) each.

CARDING AND STRIPPING.

The cards were drafted 95, giving about a 17-hank sliver, and production per card was about 235 pounds per twelve hours. The cylinder speed is usually figured here at 160 revolutions per minute, which is slightly under the standard American practice of 165. Each card had a tin cover bolted over the top to protect the flats from fly and damp, and this they claim makes for evener work as well. To look after the cards there were five separate sets of men—lap men, flymen, can boys, grinders, and strippers. For the 123 cards run by this mill there were employed seven lap men to bring in the laps, six flymen to remove the waste, fifteen can boys to handle the cans, one head grinder and eleven ordinary grinders to grind and set up the cards, and eleven strippers. These men get, respectively, 10, 10, 9, 12, and 12 rupees a month each, which corresponds to 13, 13, 11, 15, and 15 cents a day. The strippers have one of the hardest jobs in the mill, having to strip each card once every hour and a half, which keeps them stripping steadily. In addition to these men one oiler is employed at 10 rupees a month, or 13 cents a day.

DRAW FRAMES AND THEIR TENDERS.

The draw frames were six-delivery, using mechanical stop motions and leather-covered top rolls. Fluted steel top rolls seem rarely used in India. Flat revolving cleaner flannels were used, from which the lint was automatically scraped at each revolution. The draw-frame tenders were paid by the slubbing hank, and they make about 11 rupees a month, or say 13¾ cents a day. The fly-frame tenders run one frame each and are paid by the hank. The slubber price is 10¾ pies (12 pies equal 1 anna, or 2 cents) a hank, and they get off about 10 hanks a day. Intermediates get off about 9 hanks, at 13 pies a hank, and fine frames about 7 hanks, at 15 pies a hank. They therefore make about 17½ cents a day. The slubbers are 84 spindles each and fly frames 120. The bottom rolls throughout are about one-eighth of an inch smaller in diameter than corresponding frames in America running American cotton. The fly-frame tenders look after the running and creeling of their frames, but the doffing is done by doffer boys, who get about 10 cents a day.

RING AND MULE SPINNING.

This mill uses both ring and mule spinning, having 23,000 ring and 16,000 mule spindles. The numbers spun are 4s to 20s, but are mainly 10s and 20s warp yarn for the China trade, the average number being about 15s; 1.92 hank roving is used for 10s and 3.25 hank roving for 20s, which give short drafts on spinning frame of 5.21 and 6.15. Single roving is used for both, and this is the almost universal practice in Indian mills.

The spinning frames are spaced 6 deliveries between stands, instead of 8 deliveries as in America. The slope of the stands was the usual 35 degrees. The frames are 252 spindles, with a few 300. Two 10-inch cylinders are used, which is the style mostly preferred as giving less band breakage. The spinning bands are made on a special machine that makes a continuous length and plaits eight or more ends into one after the manner of a round shoe lace. The English system of top rolls is used on practically every spinning frame in India. This consists of one leather-covered front roll weighted, while the middle roll, $1\frac{1}{8}$-inch diameter, and the back roll, 2 inches diameter, are uncovered and self-weighted only. The diameter of the bottom steel rolls were $\frac{7}{8}$, $\frac{3}{4}$, and $\frac{7}{8}$ inch, respectively, instead of the usual American practice of 1, $\frac{3}{4}$, and 1 inch. This of course on the well-known principle that the shorter the staple the smaller the roll required.

SPEED AND PRODUCTION—MALE SPINNERS.

The spinner gave the speed of front rolls as 142 revolutions per minute for 20s and 196 for 10s, the production per spindle per twelve hours being $6\frac{3}{4}$ ounces on 20s and 8 ounces on 10s. A seven-eighths inch roll running at 142 revolutions corresponds in circumferential speed to a 1-inch roll at 124 revolutions. The usual speed on 20s in America is over 132 revolutions, so the Indian speed is slower, which is naturally to be expected from the cotton used. For the same reason the diameter of rings was one-eighth of an inch smaller, being $1\frac{5}{8}$ inches for 20s and $1\frac{3}{4}$ inches for 10s. The gage was $2\frac{5}{8}$ inches and traverse 5 inches for both.

The twist seems to be one to two turns more per inch, being $12\frac{1}{2}$ turns per inch on 10s weft and 22 turns per inch on 20s twist. In some mills the Indian yarn is spun as soft or softer than the American standard, down to $18\frac{1}{2}$ turns for 20s twist, but it seems to be at the cost of production.

The spinning is all done by men and boys. Each spinner runs 252 spindles and is paid 11 rupees 8 annas a month of twenty-six days, or, say, 14 to 15 cents a day. The doffers get 8 rupees a month, or 10 cents a day. There is an average of $1\frac{1}{2}$ doffers to a frame, which is

at the rate of 1 doffer to every 168 spindles. The mules were 936 spindles long, 1⅛-inch gauge for weft. The bottom steel rolls were ⅞, ⅞, and ⅞ inches, respectively. On 20s the production was 5½ ounces per twelve hours. For running each two mules of 1,872 spindles on 20s there was required one spinner, at 22 rupees a month—say 27½ cents a day; five piecers, at 12 rupees a month, or 15 cents a day, and two creelers, at 7½ rupees a month, or 9½ cents a day.

WOMEN AS REELERS.

Reeling is the only work in most Indian mills that is considered to be a woman's job, and in this mill, as in most others, all the reelers were women, but they were to be found nowhere else in the mill. This is the custom, which is strengthened by the fact that the law prohibits women working in mills after 6 p. m. As most of the mills work to 7.40 p. m. it would disorganize work if women were employed in card or spinning rooms, so they are usually confined to reeling only.

There were in this mill 300 reels and 600 women. It takes two women to every forty spindle reel. Every reel has an automatic attachment and knocks off at 120 yards. All were run by hand, being operated by means of a projecting handle on a large wheel belted to a small pulley on swift shaft. In the cotton mills throughout Bombay there are many reel rooms run by hand only, which is the strangest thing I have yet seen in Indian mills. The reason is simple, however. Each lea of yarn is supposed to be exactly 120 yards, and as this is sold to hand-loom weavers, who lay out their warp by hand, it is essential that every thread be exactly the same length. There are forty threads running on each reel, and as the machine knocks off at 120 yards it is clear that if one thread breaks that lea will be shorter by the distance run before the swift can be stopped to piece up. Belted power reels can not be stopped quickly as in the case of hand reels, which causes the use of the latter, and usually the hand-reel mills get a little higher price than the power-reel mills. This mill owes a good part of its profits to the fact that it has built up a reputation for exactness in length of skeins sold.

WAGES FOR HAND AND POWER REELS.

Hand-reel mills, however, have to pay a higher price for reeling. The price varies with the number of yarn, but taking 10s, for instance, the usual Bombay price is 4 annas (8 cents) for 20 doffs on hand reels and 4 annas per 30 doffs on power reels. Twenty doffs of a 40-spindle reel running 120-yard lengths is 96,000 yards, which, if 10s, is 11.43 pounds. The reeling wages are, therefore, 0.7 of a

cent for hand reel and 0.46 of a cent for power reels on 10s. It is curious to note that this is a higher price than is usually paid in America, where one-third of a cent for reeling 10s is considered high. The work is a little different, however, as in America the length does not usually have to be so exact, and full bobbins are reeled at each doff. In the mills here before doffing 7 leas (of 120 yards each) are tied together, forming an 840-yard skein.

MAKING UP HANKS—ABSENTEEISM.

Water bands are tied in and out to prevent tangling. Ten of these hanks are then made into one knot. Some markets require five-hank knots, and each market requires a special water band—white, red, red and white, orange, or some other color. Usually ten hanks go to the knot, and as each knot, therefore, contains 8,400 yards, it requires to make a 10-pound package exactly the same number of knots as the number of yarn used, 10 knots of 10s, 20 knots of 20s, etc. There are over the reel room three head women and two men overlookers, besides the reel-room master. The head women, called "nowghanes," were first used because when women began to work in the mills they would not speak to men; but they have since been retained because it was found easier to handle such large numbers of women through their own sex.

The Kohinoor Mill has 39,000 spindles and keeps 1,635 hands on its roll, of which 1,400 are on the active list. There are each morning 200 to 300 absentees, so it is necessary to always have a large surplus. Hands are paid off monthly and a month's wages always kept back to insure a notice being worked, but this has little effect. This mill at present is running on "short time," i. e., twelve hours. Mill starts at 6.30 a. m. and runs to 7 p. m., with thirty minutes, from 12.45 to 1.15, for lunch.

POWER EQUIPMENT AND MANAGERS.

The shafting and hangers in this, as in other Indian mills I have been through, are heavier than would be used in America; also, fully twice as much belting is used. Speeders and spinning frames are placed crosswise of the mill and their driven pulleys usually situated at the end farthest from the shaft. This gives a very long belt running to two guide pulleys and down at right angles to the spinning frame. The managers prefer long belts as lasting longer, but the first cost is excessive.

The Kohinoor follows the usual Indian mill custom of using rope drives from the fly wheel. The English system is followed of separate ropes for each groove. The engine is a 1,600-horsepower cross-pound, jet-condensing, and the boilers are the usual English

internal-fired type. The manager claims that his fuel consumption is only 1.4 pounds per horsepower hour, which, on a cross-compound engine and with Indian coal, is almost a record. The coal used in Bombay mills, with the exception of a small amount imported, comes from Bengal. The present price is 16 rupees a ton (2,240 pounds), which corresponds to $4.62 a ton of 2,000 pounds. It is a good coal, but with excessive ash.

In the organization of the Kohinoor and most other Bombay mills the manager, the carding and spinning masters, and the engineer are English. In some mills the room masters are natives, but practically all the managers are English or Scotch, even in the case of private-owned native mills. The second hands in each room are known as jobbers, for the reason that their wages are usually fixed at so much per pound of production. They are natives, and this stimulates them to keep up production. Yarn mills in India usually figure on 16 per cent waste. This mill is equipped with waste cards and two waste mules for making very low grade carpet yarn, so that a very small proportion of the waste made is sold as waste. The production is given as 26,000 pounds a day, and wages per month of twenty-five days as 19,000 rupees, which corresponds to 2.92 cents a pound labor cost.

CONCLUSION.

SUGGESTIONS FOR AMERICAN MANUFACTURERS AND MERCHANTS.

Great Britain leads the world in the manufacture of cotton goods, in fact, manufactures more cotton than all the rest of the world put together. In 1906 out of an international commerce in manufactures of cotton of probably $750,000,000 Great Britain supplied $484,723,900, or nearly two-thirds. Yet of the world population of 1,600,000,000 Great Britain has only some 40,000,000, or 4 per cent. This predominance is due to two things, her manufacturing ability and her marketing facilities. Her manufacturing ability enables her to produce the goods desired in large quantities at low cost. Her marketing facilities enable her to land the goods desired, in whatever part of the world they are needed, at a small addition to the cost of manufacture, and then to receive the payment therefor at home. These marketing facilities are based on two things, ships and banks. To-day the manufacturing ability of the United States in cotton goods equals if it does not surpass that of Great Britain, yet the marketing facilities of the latter keep her in possession of the textile markets of the world.

ENGLAND'S EVER EXPANDING CLOTH TRADE.

Only a small proportion of the English textile exports is now in yarn, and as India, Japan, and finally China increase their cotton mills this trade will be further curtailed. England's cloth trade, however, is an ever expanding one. The largest markets for British cloths are found in India, China, Egypt, Turkey, Argentina, and Australia, in the order named. Of all the countries to which she exports cloth India is by far the most important. Great Britain sells over twice as much cloth in India as in China; in fact, India consumes about a third of all the cloth exported from Great Britain. Great Britain could better afford to lose the trade of all her other possessions and colonies than that of India. American cotton manufacturers, who are just at the beginning of an aggressive campaign for world markets, should therefore consider India the largest and richest, if not the easiest, field among the first.

The English control the trade of India because their merchants have worked for it. It has been said that "India was taken by the sword and is to-day held by the sword," but both statements are incorrect. India was taken by British merchants and is to-day held by British merchants. They hold the trade because when they came out to India they settled down for long terms of years, learned the language, habits, and prejudices of the natives, and met them on their own ground. The English have settled into easier habits of life than they once led in India, and some of their mercantile houses are so old that cobwebs are commencing to gather.

Even to-day it is the custom for young men sent out as clerks, bookkeepers, etc., to sign five-year contracts. At the end of five years they get six months' leave on full pay or twelve months' leave on half pay. They then usually contract for three to five years more. After ten to twenty years, if successful, they go to London to manage the firm or retire on a competency. This five years' contract insures the employees becoming familiarized with Indian trade and life and makes for thoroughness. Such long contracts would hardly suit American employees, but the point is that Americans sent out here to build up a trade should be prepared to settle down and make a steady campaign; spasmodic effort will not do. No manufacturer locates a waterwheel on a stream that at times dries up, and no importer wants to connect himself with goods of which the supply may be shut off at any time on rise of prices or other occurrence at home.

PERMANENT AMERICAN AGENTS WANTED.

The Indian trade can only be captured by permanent American agents carrying a good line of manufactures, especially of the smaller

stock articles, at their Indian headquarters. Very often the native would prefer to buy the American article and would buy if sold from stock, but he will not wait four months for it. A most important consideration is the kind of agent sent out, as the whole campaign hinges on him. For India a young married man is to be preferred. He should be a married man to make him work and to keep him from drink, which is irresistible to the solitary exile in this hot climate. He should be young because an older man brought up in western ideas would not be pliable enough to fit into the essentially different customs of the East. A native likes to have a lot of palaver when he buys, wishes the whole thing explained to him over and over again, and wants to put it off several times before he finally decides to buy. Tact, patience, and a sense of humor are essential requisites for a salesman in India.

HUSTLING IN THE RIGHT WAY.

There is a strata of sense, based on long experience, in the idea that it won't do to hustle in the East; yet in the places where the American salesman has obtained a foothold it has been done by hustling, but in the right way. The English merchant in the East from Suez to Tokyo starts to work about 10 in the morning and works to, say 5 in the afternoon, with an hour for lunch and perhaps a leisurely cup of tea in the afternoon in his office. In many places you can find no one at business places after 4 o'clock. This five to six hours is regarded as a good day's work. The merchant sits in his office and the natives come to him. Usually the work of going around the bazaars is relegated to his babu, or head native employee. The American, as a rule, goes out to the bazaar after the trade himself, and where he does so in many instances he is enabled to secure part of the trade of the Englishman, for a bargain can be made much more easily between the two interested parties than through a third person, and a merchant's requirements can be much more easily sized up when his stock is seen. This is one reason why several American lines are beginning to get a good start in Bombay. As an instance, the gharriwalla, or driver, won't have a bell unless it is American make and has an eagle or some such mark on it as proof.

ADVANTAGES AND DRAWBACKS OF LONDON SYSTEM.

The system whereby the Indian merchant after a long experience in India goes home to manage the head office in London is a good one in that it provides men at both ends of the line who are thoroughly familiar with the trade; but it also tends to concentrate the whole management at the London end and to leave the Indian branch without the initiative and self-reliance essential to growth. These Indian

agencies are therefore simply a convenience to the London end in shipping and are concentrated at Calcutta, Bombay, Rangoon, Karachi, and Madras. Very few English houses have branches in the interior of India, even at such large cities as Delhi, Lucknow, Benares, and in many of the native States, even in the large towns, English merchants are not allowed to establish themselves if they want to do so. At the larger interior cities the trade is in the hands of the natives, who form connections with or act as agents of the English at the ports. These English houses concentrated at the seaports also send into these places very few drummers to show their goods and induce the native firms to buy; in fact the system of traveling men that obtains in the United States is not found in India. The English depend on the natives writing their requirements or else coming down to the ports to buy.

There are a comparatively small number of foreigners doing business in India, the Germans probably being the most numerous and successful. There are also Belgians, Italians, etc. The largest importing house in India is not English, but Greek. Dutch, French, and other shippers frequently arrange with a local English firm at Calcutta or Bombay to handle some special line, say blankets, agreeing to sell only through them and the local house agreeing to handle only their make of blankets. Bills of exchange are accepted at sixty days sight and the importer accounts for all moneys realized every three months.

TIME FOR PAYMENT.

The time demanded varies at different places, appearing to be longest at Calcutta and shortest at Bombay.

In Bombay most goods are supposed to be paid for within seven days after arrival. This is the rule, though longer terms are frequently required and allowed. In Calcutta in importing piece goods much longer terms are given. In fact a custom has grown up with many importing houses who order piece goods for native firms to store these goods free of charge for ninety days, and then after delivery to allow another forty-five days in which to pay. Suppose it takes forty-five days to get the goods from England and to land them, this makes six months from the time the goods leave the factory before their agent gets pay for them. In many cases it is the eastern disinclination to do to-day what you can put off until to-morrow and not the actual needs of the merchant that causes time to be asked. Some of the native firms consider it as derogatory to their dignity to pay cash when they buy a stock of goods, as the important man of a village would if required to pay cash every time he made a purchase at the village store.

NATIVES THE BUYERS.

India is one of the greatest buying markets of the world, and the people who do the buying are natives of India, not the handful of foreigners. The bulk of the traders are native, and to gain the market the idiosyncrasies and whims of these merchants must be catered to. Most of the merchants are square in their dealings, but, as stated, they are slow in paying, especially the Bengalese, and always want time whether they need it or not. The custom of discount is a special favorite with them. While usually honorably intentioned, the custom in India of a little squeeze is so strong that the Marwari dealer will often not pay until forced to do so, and then wants a discount for cash. Importing houses at Calcutta frequently charge 5 per cent more than they expect to get, and when, after waiting some time, they bring pressure to bear, they allow 5 per cent for paying up in full. The native is pleased at getting this reduction and is in the right frame of mind to continue to do business with the firm, while if charged 5 per cent more and forced to pay up in full he would be disgruntled.

PRACTICE OF GIVING GRATUITIES.

One custom that makes it unpleasant for new firms doing a general business in India is the amount of bribery that takes place. A slight instance of this is known of every tourist when his servant forces a shopkeeper to pay him 1 anna commission out of every rupee that his master spends. Neither the servant nor the shopkeeper sees anything wrong in this, as it is the custom, and the shopkeeper simply charges the tourist that much more to cover it. One anna out of the rupee, which is one-sixteenth, seems to be the usual "squeeze" or commission allowed in India, which is therefore higher than the "squeeze" practiced in China, which usually runs from one-half to not over 5 per cent. How the same system applies in general business, especially where large sales are made to the purchasing authorities of some of the native States, is quickly found out by the one trying to introduce his articles. An instance I came across was one where an importing firm sold an automobile for $15,000, yet the price to the purchaser was $25,000. A small importer related an instance where he endeavored to sell some machine shop supplies to a big manufacturing establishment and found there were four men who claimed 5 per cent each before any business could be done. These two instances were given by reliable men, and one hears enough unauthenticated tales to show that the system is widespread.

The custom of 1 anna out of the rupee commission has in some cases been recognized by the Government. For instance, in selling

sheets of undetached postage stamps the retail dealer has heretofore been allowed this customary commission. The Government only discontinued this practice in March and its action caused many protests.

CONSIGNMENTS BY FOREIGNERS.

A large business is done in India on the consignment principle, especially by foreigners introducing new articles. A consignment account is, as a rule, not favored by Americans, but in India in many cases it is the most advisable plan where a firm can not afford its own agent and wants to introduce a new article. The standing of an importing firm or small dealer can be easily ascertained through the banks, and thus the reliability of the goods assured. It is also usually safest to test the market in this way with small consignments before attempting large things.

A point worth noting is that goods should be quoted c. i. f. India, and also that the quotation should be preferably in rupees. The larger merchants at the Indian ports know the value of the American dollar, but are accustomed to think in rupees, and a proposition in rupees strikes them much more clearly than a proposition in dollars. It is the same as it would be with a New York merchant importing from India. He knows the value of the rupee, but prefers a quotation made in the money of his daily transactions.

BRITISH AND AMERICAN METHODS.

Speaking generally, it may be said that the difference between the American and the English cloth export methods is that America sells by cloth and England sells by design. America sells cloth that is woven and England sells cloth to be woven. The one plan favors the seller and the other the buyer. The English watch the Indian market, and if they see any popular design—in native cloth, say, a new native print or new combination of colors—immediately forward it to Manchester to be duplicated. Pattern cards of this design and with variations are then sent out and orders taken therefrom. Each native merchant has his own ideas of how the cloth should be made up and usually wants a particular heading with a certain number of tinsel and colored picks; also each section of India wants a particular kind of dhooty or sari or white shirting. This trade has to be catered to, and new patterns to be salable must first be submitted to the merchant for approval or change before making up the cloth. There must of course be a certain amount of cloth ordered of any one kind before the manufacturer will make a change, but in staple articles, like dhooties and saris, the volume of the business done in any good pattern is very large.

PATTERN CARDS NECESSARY.

Pattern cards are demanded by the Indian buyer, and this is one of the minor reasons why American mills do not more actively seek this market. Often these cards are very elaborately gotten up and are furnished in profusion. For instance, a merchant buying 10 bales of dhooties, with, say, 20 different styles of borders, may demand two or three pattern cards showing all the different headings. These usually come out before the goods, and frequently on the strength of the sample cards the merchant will sell the entire lot before arrival. Naturally therefore he clings to this custom. Where a staple article is sold or one pattern gets a hold on the market the merchant may sell bale after bale from the same sample card without necessity of getting new ones. This detail of pattern cards is one particular instance in which Americans must cater to the native customs, at least on all cloths like dhooties, saris, prints, etc. After all it is not a large matter. A New York house with half a dozen pattern-book styles kept in stock can delegate to the office boy the work of gluing in swatches when desired. Most of these sample books have stiff pasteboard covers, with an attractive picture on the outside and a folder inside, on which are pasted the ends of cloth and the edges covered with gilt paper. The whole is tastefully gotten up and gives the buyer a good impression of the goods before they are received.

In drills, prints, shirtings, even in dhooties and saris, America could do a large business with India. At present the textile exports of the United States go mainly to the Far East and practically none to the Near East. The main factor is that the former takes heavy goods and the latter light goods, but the United States will soon be competing with England in fine goods and will need a foothold here on which to build.

BUSINESS FOR DIRECT STEAMSHIP LINE.

To one who studies the trade between the United States and India it is clear that one of the main things needed is a direct line under the American flag. In 1905–6 the total trade between the United States and India amounted to 152,938,987 rupees, or, say, $49,552,232. Of this amount India sold the United States $42,215,439, while the United States sold India only $7,336,793, leaving $34,878,646 that the United States had to pay India in cash. If this large balance had been paid in goods it would have stimulated many American industries. Even considering that some American raw material (chiefly cotton) and that some American manufactures (chiefly machine parts) are forwarded from stock in Great Britain and not credited to America, India yet sells the United States over

five times as much as the United States sells India. If the American manufacturers were as eager after this trade as are the Germans these goods would have been in American bottoms, and American cottons, tools, and machinery would have more than filled the ships for the return trip.

BOMBAY AND NEW YORK.

Bombay is nearer New York than is Shanghai and the freight rate is less. Also the published rates on cotton piece goods, even under the present system of transshipment, is actually less from New York to Bombay than from Liverpool to Bombay, 20 shillings against 22 shillings, though more from New York to Calcutta than from Liverpool to Calcutta, 25 shillings against 23 shillings. As a matter of fact, however, the rate even to Bombay, except in very exceptional cases, is in favor of the English by reason of the many special rates and rebates that are named. The rates are varying continually, and depend not only on the time of year and the demand for cargo space, but also on many other things having little connection with the laws of supply and demand. The lines running to Singapore, Burma, and other places have rate wars and give special rebates amounting to 10 per cent or more to certain favored parties who agree to confine themselves to one combine. An instance of this at Bombay is that of the Bombay Native Piece Goods Merchants' Association, which imports only by the ships of certain lines, and for confining their imports to this group they get a rebate of 1 rupee a bale or case, of which the member importing gets 12 annas and the association 4 annas. Such instances are common, and much larger rebates are frequently given, but naturally little is published about it. Such associations of shipping interests tend to confine the trade to British goods, though not so stated, and to hamper sales from America, which are all transshipped in England.

COMPLAINTS OF PACKING.

Another evil of the system of making England the headquarters and distributing center for American exports to South America and India is that it necessitates much stronger packing. In transferring to lighters and then to holds of vessels goods are frequently slid down gangways and dropped some distance; and in cases of goods shipped by bulk crowbars are used to force the cases into the hold, or else a half a dozen men jump on top of a case and force it into place. The result is that in India there is much complaint of American packing, and whether due to original poor packing or rough handling it is a fact that a good deal comes out in a broken-up condition, as I have been personally shown by importers. A direct American line would also give much quicker time, and this would

help trade wonderfully, for the long time in transit and the various special rebates that British importers get give them an undue advantage over Americans. The few ships that do make trips from New York direct under the present system run irregularly and usually tack back and forth across the Mediterranean, so that it takes three to five months to reach Bombay; as long or longer than if transshipped in England. What is needed is an American line running to Singapore via Bombay and making fixed trips.

One other point is that the American manufacturer is not backing up the few American agents who are doing a pioneer business here. Take an instance I recently came across: An American agent has the sole agency in India for a well-known American fountain pen. He quoted what was presumably the maker's rock-bottom price, and sold the pen in the bazaars with a very small per cent commission added. He soon found that the same pen was being sold in the bazaars cheaper than he could sell it without any commission at all. It was traced to a German house, and it was ascertained that the pen was not an imitation but the genuine article. It was further ascertained that a house in Germany had offered the American firm a large order and secured a very low price, then shipped the pens to India from Germany and undersold the man having the exclusive agency. The American makers claimed they were not responsible, but in giving an exclusive agency to an American in India the makers should at least have protected their own agent by giving him as low a rate as they quoted his business rivals.

COTTON FABRICS IN THE PHILIPPINES.

MARKETS OCCUPIED MAINLY BY EUROPEANS.

During the fiscal year 1906 the imports of cotton textiles into the Philippines from the United Kingdom were valued at $3,006,140, against an import from the United States of $278,890, the American sales having dropped from $764,990 in the year previous.

According to both manufacturers and importers the decrease in American cottons in 1906 was directly due to an unexplained change in the Philippine tariff in 1905, whereby American textiles were discriminated against in favor of foreign goods. In this period the imports from the United States amounted to $227,786, while for the whole of the fiscal year 1906 the total was only $278,890. The United States bids fair in 1907 to reach the highest mark it has yet attained, probably 15 per cent of the total. It should not be forgotten, however, that England will still be supplying a large proportion of the imports.

The reason of this great increase from the United States is undoubtedly the effect of a recent correction of the slip in the tariff law of March, 1902, which was corrected by the act of February 26, 1906. The effect of this correction, however, was not fully felt in the actual receipts at Manila for some months of course; that is, until the beginning of the fiscal year 1907.

IMPORTS FROM VARIOUS COUNTRIES.

The following statement shows the imports of cotton textiles into the Philippines from the several countries during the fiscal years 1903 to 1906:

IMPORTS OF COTTON GOODS INTO THE PHILIPPINES, 1903–1906.

Countries.	1903.	1904.	1905.	1906.
United States	$389,303	$319,666	$764,990	$278,890
United Kingdom	3,124,518	2,216,776	2,867,882	3,455,862
Spain	861,800	761,576	886,697	885,206
Switzerland	288,414	358,206	360,837	484,303
British East Indies	328,411	357,715	348,650	372,259
Germany	576,058	277,684	313,190	279,559
China	143,414	150,803	268,529	239,915
Japan	131,890	191,526	230,464	220,191
Italy	89,512	67,130	90,421	122,829
Netherlands	78,736	38,822	52,052	101,073
France	118,630	89,875	59,284	91,083
Belgium	77,865	21,858	86,256	77,785
Hongkong	60,557	12,111	5,777	18,661
Austria-Hungary	10,813	4,541	11,892	12,827
All other	4,459	94,065	41	1,886
Total	6,284,370	4,962,354	6,346,962	6,642,329

This shows clearly the extent to which England preponderates in this trade, averaging as much or more than all other countries together. To ascertain if this proportion was still holding true in face of the revised tariff, the customs figures for the first four months of the fiscal year 1907 were consulted.

The following statement was made up according to the tariff classification and shows the total imports of the several classes of cotton goods imported during the four months ended October 30, 1906, and the imports from the United States in separate columns:

IMPORTS OF COTTON GOODS INTO THE PHILIPPINES. QUARTER ENDED OCTOBER 30, 1906.

Classes.	Total imports.		Imports from United States.	
	Pounds.	Value.	Pounds.	Value.
Closely woven cloths	2,900,339	$1,031,568	543,618	$201,605
Loosely woven cloths	1,0[illegible]9[illegible]	330,630	51,905	16,599
Wearing apparel	29,576	13,742	3,016	2,621
Carpets	181	91	.....	.....
Yarn and thread	1,488,061	434,755	1,684	520
Quilting and piqués	4,648	2,385	.....	.....
Velveteens and corduroys	2,251	1,351	.....	.....
Tulles and laces	8,445	13,600	.....	.....
Knit fabrics	442,257	236,764	2,314	1,666
Waste, etc	51,461	3,571	4,425	355
All other	153,415	78,507	6,441	4,420
Total	6,090,712	2,146,964	613,465	227,786

CUSTOMS CLASSIFICATIONS.

The closely woven cloth, which covers the bulk of imports, is cloth counting over 25 threads (warp and filling) per 6 square millimeters (millimeter=0.0394 inch), while the loosely woven has less than 25 threads per 6 square millimeters. The tariff classifications, while all right as a basis on which to collect duty, are very vague in their phraseology, and such a table as the foregoing, which is similar to the regularly published classifications, is of very slight value to a prospective exporter. Closely woven cloth may be anything from a mosquito net to a cotton Italian, and conveys no idea to a manufacturer's mind. Loosely woven is similarly vague and general. The world's model tariff reports, in this respect at least, are those of the imperial maritime customs of China. They are published quarterly and yearly. Such reports show in detail the names of all cloths imported, such as white shirting, gray shirting, 32-inch T-cloth, cotton duck, etc., the weight, yards, and value of each kind from each country, how much was reexported from each port, how much actually consumed in each district, etc. It gives detailed information what kind of cloth is bought at each importing center and who [illegible]es it, and this is valuable information to manufacturers seeking start in this trade. To install such a system in the Philippines

might be too costly now, but at the next revision of the tariff some provision should be put in whereby the cloths should be listed under general names at least.

KINDS OF CLOTH IMPORTED.

A statement prepared by the director of customs, covering the imports into Manila during the month of October, 1906, gives a clearer view of the actual cloths imported than anything heretofore published. The following particulars of the imports from the United Kingdom and the United States during the month gives a sufficiently clear view of the trade:

KINDS OF COTTON GOODS IMPORTED INTO MANILA, OCTOBER, 1906.

Kind.	From the United Kingdom.		From the United States.	
	Pounds.	Value.	Pounds.	Value.
Gray shirtings	15,095	$3,423	348	$226
Bleached	294,984	95,485	.....	.....
Unbleached	170	25	2,019	622
Twilled, plain	27,281	8,469	.....	.....
Twilled, dyed	19,596	8,777	.....	.....
Plain, dyed	69,189	24,788	23,312	7,363
Figured and dyed	26,434	13,140	213	53
Printed	31,100	13,511	138,468	54,600
Handkerchiefs, plain, figured, printed, etc	4,424	2,202	.....	.....
All other	13	6	104	168
Total	488,286	169,826	161,454	62,972

Of the dyed twills 17,012 pounds, valued at $10,037, and of the printed cloth 31,100 pounds, valued at $13,511, came from Switzerland.

ORIGIN OF DIFFERENT CLASSES OF IMPORTS.

The foregoing statement shows that at present nearly all the cotton prints are coming from the United States. This, however, is only since July, 1906, for during last year very little came from there. It also shows that, with the exception of some $7,363 worth of plain dyed goods, there is practically nothing else imported from the United States. These plain dyed goods are mainly turkey-red shirtings.

The table shows that the bulk of the plain bleached cottons come from England, while none comes from the United States. These are mainly white shirtings, the largest single cloth imported. During the month of November there was brought in a good shipment of white shirting from the United States, and it is to be hoped that this will prove the entering wedge. In plain twilled cottons the producers are in England and Belgium. This embraces a good many different cloths, but the largest single item is white drills. Here also a blank follows the name of the United States. In dyed twills the

producing countries are England, Scotland, and Italy. Under this head come khaki drills, some dress goods, Italians, umbrella cloth, etc. In plain dyed cottons England leads, as usual, followed by India, the United States, and Spain. Under this head are turkey-red shirtings, cambrics, ginghams, crêpe, trouserings, checks, stripes, plaids, etc. In figured and dyed goods the leaders are Scotland, England, and Switzerland. This includes dyed brocades, woven fancies, Italians, umbrella cloths, etc.

Under cotton prints are the regular shirting prints, percales, printed lawns, muslins, flannels, sateens, etc. At present the United States leads, followed by England and Spain, France and Japan also sending a few. It is satisfactory to know that the proportion from the United States is not only increasing, but that the total volume is also heavily increasing. I was informed by the appraisers' division of the customs that for the single month of November, 1906, there was imported over $140,000 worth of American prints. Cotton blankets come from the Netherlands and Germany; cotton pile fabrics from Italy and Japan. That from Japan is the Bedford cord or pique. Ordinarily, however, under this head England and Germany will be found leading, the main pile fabrics imported being velvets and plushes.

Umbrella cloths are ordinarily a very much larger import than shown for the month in question and come from Germany and England. Cotton handkerchiefs come from England, Spain, Scotland, and France. Cotton trimmings come from Germany. The table shows that the United States is shipping to the Philippines plain shirtings, prints, turkey reds, and nothing else, leaving untouched the possibilities in other lines that it ought to control, such as white drills, duck, cottonades, cotton trousering, ginghams, plaids and checks, cotton flannel, etc.

FUTURE PROSPECTS.

The possibilities of the trade in cotton fabrics in the Philippines are great. The annual import has averaged some $6,000,000 for quite a while, and with a betterment of conditions in the islands and the tendency of the people to buy more foreign luxuries this trade will be over $15,000,000 in less than five years. In one year, 1901, a spurt was made up to $9,441,047. With the correction of the tariff slip of 1905 the proportion from the United States has rapidly increased.

In 1906 there was imported $6,642,329 worth of cotton manufactures. There is very little cotton cloth manufactured in the islands, and of the native cloths, made from the fibers of hemp, pineapple, etc., the total production does not exceed in value $1,000,000, and probably falls much below that. This gives less than $1 per capita

for a year's clothing. The Filipino, especially the Tagalog, is fond of fine clothes and display, and with increasing prosperity there will come, among the first demands, more textile imports. The control of the Philippine textile market by the United States will be of great advantage to American manufacturers as a basis from which to reach out after the vast trade of southern China and the East Indies.

MANILA COTTON MILL.

There is one cotton mill in the Philippine Islands. It is at Manila, is owned and operated by Englishmen, and uses English machinery. It is controlled by a large English importing house in Manila. This mill has 10,000 spindles and 220 looms. A few of these are dobby looms. The mill building is well suited to tropical conditions, having cement floor, light iron construction, with iron channel beams for posts, the tops and sides being of corrugated sheet iron.

The cotton used is mostly American, being mixed with one-fourth native. The native cotton comes in 250-pound bales, or rather packages, covered with coarse matting, tied with bynco rattan. The Philippine cotton seems to have a better staple than the average Chinese, and some of it would grade up well, but it runs very uneven. The present price at Manila is 9 cents gold per pound for native ginned cotton, while the American strict middling costs landed 14 cents gold. The mill makes its soft waste into candle wicks. The motes are cleaned and the cotton seed sold. Cotton seed is now worth about 24 cents per bushel of 32 pounds. The mill is run on the careful English system and no waste sold that can possibly be reworked. The preparatory machinery is from England, there being only two machines—an opener and picker and one lapper. The greater portion of the stock put through is white cotton, but for the colored raw stock dyeing is used. There are 32 cards, all English make, as are also the draw frames and fly frames. The processes of drawing used are slubber, intermediate, and fine frames. The spinning frames are of variable number of spindles, but are long, mostly with about 300 spindles. Hank clocks are used on every spinning frame, and the spinners are paid by the hank. The wages vary, but for No. 20s, for instance, the price is 7 cents gold a hank. One girl to a side is usual. The numbers spun are mostly about 20s, ranging from 12s to 32s.

The product of the looms is mainly coarse white shirtings with some convict-stripe cloths, and a few looms on chambray. The pay for weaving varies, but the average is about 17½ cents gold per 40-yard cut. The hours are from 6 a. m. to 5.30 p. m., with a half hour off for breakfast and another half hour for dinner. On Saturdays the

mill stops at 5 p. m. Even with this schedule there is great trouble in keeping the help. The Filipino is deft of finger, and on his hand loom at home makes very fine fabrics from unpromising materials; but steady work indoors, or out of doors for that matter, is not to his taste. Promptness in arriving on time is not one of his virtues. He makes a very unsatisfactory mill hand, and it is impossible to get most of them to work continuously. The mill has been in operation since 1896.

CLOTHS IMPORTED.

WHERE THEY COME FROM AND PRICES PAID.

Four classes of cotton cloths are now imported into the Philippines—white shirtings, white drills, betilles, and prints. The two first named come from England, betilles (also called Swiss muslin) from Switzerland, and cotton prints (since the tariff law was corrected) from the United States. In addition, cotton yarn is imported from Japan, England, Scotland, and Switzerland in about equal quantities, knit cotton undershirts from Spain, and hosiery from Germany. These are the main cotton textiles imported and the principal countries in each line. Details in regard to these, also details of other minor fabrics, are herein given, so that the American manufacturer can gather some idea as to whether it would pay him to attempt the market.

To ascertain this, the first object is to learn the prices at which competitors are selling. Retail prices depend on the individual seller's idea of profit and the competition in his section, so that retail prices vary greatly between two neighboring towns, or even in the same town. Wherever possible, therefore, invoice prices have been obtained, which show exactly what the importing merchant is now paying. The usual retail selling price is 20 to 50 per cent higher, as duty, charges, and profit must be allowed for.

Textiles are imported into the Philippines from all countries. There is not a manufacturing country in the world that is not represented on the market at Manila. In the box forwarded to the Bureau of Manufactures will be found textile samples from England, Scotland, Spain, France, Belgium, Germany, Switzerland, Austria-Hungary, Italy, India, Japan, and the United States. In giving the construction of goods it is customary in some cases to give the ends each way per quarter inch and in other cases per inch. The constructions are here given in ends for inch. As is customary, warp ends are given first; thus 60 by 56 means 60 warp ends per inch of width and 56 filling or weft ends (i. e., picks) per inch of length.

WHITE SHIRTINGS.

The tariff is based on weight, and thread counts per 6 square centimeters (centimeter = 0.3937 inch) and does not, as does the Chinese tariff, specify the different cloths by name. There is therefore no way of ascertaining the exact proportion of each cloth imported. There is no doubt, however, but that the largest single item is white bleached shirtings. This white shirting is very extensively used and is a large import, probably $1,000,000 worth a year. It is mainly used for clothing, especially in the provinces, where it is used for trousers, shirts, and underclothing, large numbers of the men wearing no other kind of cloth at all. There are many varieties of white shirting, but that mostly imported here is the medium, not the very heavy, starched goods.

In China a usual white shirting imported is 38½ inches wide and 38½ yards long. The white shirtings imported into the Philippines vary from 24 to 77 inches wide, from 20 to 50 yard lengths, and the constructions from 56 by 48 to 80 by 80 ends per inch. The most usual form of white shirting imported here is a pure size, rather soft (medium) finish, 34 to 36 inches wide, 40 varas (= 36½ yards) long, and, say, 72 by 56 ends per inch construction. The present invoice price on this is about 4½ cents a yard. Besides its large use for clothing, white shirting is used for sheets, pillow cases, and other domestic purposes. It is not sold, as are sheetings, by weight, the market price depending on the finish, amount of size, perfection of weave, width, etc., the general appearance and feel of the goods being the controlling factor. A few prices from recent invoices were as follows:

PRICES OF WHITE SHIRTINGS ON MANILA MARKET.

Width.	Ends per inch.	Length.	Price per yard.	Width.	Ends per inch.	Length.	Price per yard.
Inches.		*Yards.*	*Cents.*	*Inches.*		*Yards.*	*Cents.*
23¼	72×60	35	3¼	35	80×80	36¼	5¼
24	72×60	35	3¼	35	68×60	36¼	5¼
31	56×48	36	3¼	35¼	64×64	36¼	4 7/8
34	68×68	36	5	36	76×68	36	6¼
34	72×56	36¼	4¼	36	76×76	40	7¼
34¼	68×60	36¼	5¼	77	56×48	20	17¼
35	72×56	36	5				

These are actual invoice prices from shipments received during November and December, 1906, and samples have been forwarded to the Bureau of Manufactures. All in the list came from England. From the United States there has been practically none imported, but small quantities are now beginning to come in, mostly 36-inch widths, and this large field should be cultivated by American manufacturers. In the Orient American bleaching is regarded as imperfect, but there has been a great improvement in this regard in recent

years and it is now almost, if not quite, equal to the English. As shown on their invoices the English charge about two-thirds of a cent per yard for bleaching.

LOCAL MEASURING SYSTEM—PACKING.

In the foregoing list of recent shipments it will be noticed that 36½ yards seems a common length. This is really 40 varas, and is so marked on the pieces. The vara is the Spanish linear measure, and is more widely used in the Philippines even now than the English yard or the meter. If one goes into a native or Chinese store in Manila and asks for 10 yards there are usually measured off 10 varas, as the "yardstick" used is a vara long. A vara is 0.927222 yard, or 33.384 inches, so in this case the buyer taking the Filipino yard loses 2.616 inches to the yard. Some of these white shirtings imported are simply the ordinary 36-inch, 40-yard sheeting bleached, and on these the price varies from 5⅞ to 7⅛ cents. A large shipment of these just in were 50 pieces, or 2,000 yards, to the case, and were marked as 548 pounds gross, 443 pounds net weight. These were therefore 4.5 yards to the pound goods. In this instance the tin-lined cases were charged for extra at $2.75 a case.

All of these white shirtings are shipped in tin-lined cases, and sometimes this is included in the invoice price and sometimes put down separately. The former method is much preferred by the buyers, as "extras" disarrange their calculations and are never favored by them. The charges for cases vary from 49 to 73 cents up to $2.92 gold, and the buyer never knows how much he is going to be levied on, as it is rarely the same on two consecutive shipments. These tin-lined cases are carefully soldered, and the boxes are stoutly made, ¾-inch plank being used, reenforced with two to four iron bands or with short iron ties crossed at the corners. Usually fifty pieces of about 36 yards are put in these cases, divided up into packages of five bolts each wrapped in tissue paper and then with stiff wrapping paper. Before these are put in the casing is lined with heavy wrapping paper, usually waterproof, so that the cloth is well protected.

NAINSOOKS, WHITE LAWNS, AND DRILLS.

Closely allied to white shirtings is the white cotton nainsook, which is practically a fine white shirting. This also comes from Manchester, and the main quality is a pure-sized, 30 to 31 inch, 108 by 96 ends per inch construction, coming in 18-yard lengths. The present invoice price is $1.07 per 18-yard piece, which is about 6 cents a yard. In China white is the badge of mourning, while most clothing is dyed some color, usually blue. The Philippines is more of a tropical country, and white is universally worn, and white goods, whether

shirtings, nainsooks, drills, cotton duck, lawn, or what not, is in much larger use than any dyed goods.

The white lawns imported include the ordinary goods, averaging about 72 by 64 ends per inch to Victoria lawns averaging about 92 by 92, or Persian lawns averaging about 100 by 100 or over. A white lawn, 29 inches wide, 10 varas (9.14 yards) in length, 60 by 56 ends per inch, is now invoiced at 3 cents a yard. Another, 25 inches wide, 9.14 yards long, 68 by 68, is invoiced at 45 cents per piece, or 5 cents a yard. This last is also heavily sized. The Victoria lawns, which are finer grades of lawns, are 24 to 26 inches wide, and the main constructions are 92 by 92, 96 by 84, 80 by 72 ends per inch, respectively. The 26-inch, 92 by 84, is now invoiced at 49 cents per 10 varas piece, or 5¼ cents a yard. The main Indian lawns imported are invoicing at $1.99 per 24-yard piece, 30 inches wide, or 8¼ cents per yard, and at $2.25 per 24-yard piece, 36 inches wide, or 15 cents a yard. The Persian lawns also come in 24-yard lengths and are mostly 32 inches wide. The prices on white cotton Persian lawns range from 7½ to 10½ cents a yard, while on the white mercerized cotton Persian lawns, which are also 32 inches by 24 yards, the price ranges from 9 to 16½ cents a yard. These are all prices taken from recent invoices, and, roughly speaking, the retail prices are 40 per cent higher. They are nearly all imported from England. These all come carefully packed in tin-lined boxes, and for making up and packing the present charges, as shown on invoices, run from $2.92 to $14.60 a case. This includes case, tin lining, tissue-paper wrappings, special labels, etc. The weight of the lawns run from 10 yards to the pound or more, some of the heavier starched white lawns weighing about 13 yards to the pound for the Indian lawn, and up to 16 yards to the pound for some of the finer Persian lawns. Lawns fall under paragraph 118 of the tariff. An ordinary Victoria lawn, 23 by 23 ends per 6 square millimeter, would pay a duty of 50 cents per kilogram of 2.2 pounds, or, say, 2 cents a yard duty.

DRILLS FOR SUITS.

One of the most largely imported cloths is white drills, for men's suits. The climate is such that one weight of cloth can be worn all the year around, and a large proportion of the men in the cities, foreigners and natives, wear only drills. These are not the drills shipped by the southern mills in such large quantities to China, especially to Manchuria, which are gray goods, and all three-harness twills. The drills that are used so largely for clothing, taking the place of white duck, are not twills—that is, ordinary twills—but are satin weaves. In a regular twill weave every pick is interlaced with the warp in the same manner, but each successive pick commences one

end farther to the right or to the left, thus enabling each end to be bound into the cloth in regular order, which produces the diagonal effect or "twill." In satins the picks are arranged differently, as it is intended to obtain an even surface, free from the bold diagonal lines of a twill, and thus the points of intersection are more distributed.

A good many satin weaves are used for white drills, but the greater portion are made with five-harness, and the order of lifting is 1, 4, 2, 5, 3. Some are made with the straight draw 1, 3, 5, 2, 4. The figures refer to the order of lifting the heddles in weaving. In making these goods the proportion of warp to filling, or weft, is usually about two to one, as with the warp predominating a cheaper fabric is produced, less time being required to weave a given length. These drills are made in widths and lengths to suit the customer, but usually come 24 to 25 inches wide (61 cm.=24 inches) and in lengths of about 30 yards. The prices vary with the construction, weight, and finish, but some recent invoice prices were 7¼ cents per yard for some drills 24½ inches, 132 by 84 (warp and filling ends per inch); 7½ cents for some 25 inches, 132 by 80; 8⅝ cents for some 24 inches, 140 by 92; 8 cents for some 24 inches, 96 by 80; and 9⅛ cents for some 24 inches, 140 by 80. Generally speaking, the invoice prices are running from 7 to 10 cents a yard, and of course the retail prices are much higher. There is a very large quantity of this used, and nearly all of it comes from England.

BLUE, GRAY, AND CHECK DRILLS.

Of the regular three-harness gray drilling there is very little imported, and what is brought in comes either from Japan or England. The natives also weave some drills on hand looms, producing a small amount. In a Chinese shop at Manila I saw three pieces of 3-yard drills selling side by side—English, Japanese, and Filipino. The shop price was the same on all, $3.75 per 40-yard piece, or 9⅜ cents a yard. This was the asking price, but the native and the Chinese shopkeepers always have a sliding scale of prices, and how far down the scale the price is brought depends on the persistence and skill in arguing of the buyer, so the real retail price was probably somewhere between 8½ and 9 cents a yard. A recent invoice from the Miye Cotton Mill, Japan, of 3-yard drills gives an invoice price of 4.30 yen per 40-yard piece, which is only 5.75 cents a yard. To this was added 1 per cent commission paid the Japanese commission house, and, as freight and other charges have also to be added, the price landed at Manila was probably about 7½ cents a yard.

There are some gray half-linen drills, both gray and dyed in the piece, imported from Manchester. These are 24.6 inches wide, 56 by

44 construction, three-harness, and the invoice price is 9⅝ cents a yard. Some blue drills, all cotton, imported in January, came in cases (the boxes being 2 feet 11 inches by 2 feet 3 inches by 2 feet 7 inches, tin lined) of fifty 30-yard pieces, 1,500 yards each. These were 24 inches wide and invoiced at 9⅜ cents a yard. Some check drills came in cases of fifty 24-vara pieces, 22½ yards approximately, and were invoiced at 6 cents a yard. These were 30 inches, 56 by 48 ends per inch, and were 5.5 yards to the pound. Most of the three-harness drills imported are khaki drills.

KHAKI DRILLS AND COTTON DUCK.

These are three-harness drills dyed the peculiar brown shade known as "khaki," the genuine original color of which is a secret held by one concern in England, with a branch in the United States. These goods come in 27 and 28 inch widths and 30 and 40 yard lengths. Besides being worn by the troops they are largely used in the Philippines by civilians as suits for rough wear, hunting, or traveling in the provinces.

Of the three main brands imported the "Stockport" is considered the most durable color, and is used for the Philippine constabulary service. This is a 28-inch, 30-yard, 3.1 yards to the pound, 68 by 52 cloth, and is invoiced at present at 10½ cents per yard, less 3 per cent discount. A heavier grade of this brand is a 10-ounces to the yard, 82 by 48 cloth, invoicing at 17¾ cents a yard, less 2½ per cent. This comes in 40-yard lengths, 25 pieces or 1,000 yards to the case. The "Wigan" brand is also largely used. This is a brighter shade and slightly more dressy goods. It is mostly 27-inch, 2.50 yards, 72 by 48 goods, coming in 40-yard lengths and invoicing at 13 cents, less 2½ per cent discount. A heavier weight of the same color is 8.40 ounces to the yard, 27 and 28 inches, 92 by 56, and invoiced at 15½ cents a yard, less 2½ per cent. Another brand largely used is between these two in color, not being as dull as the Stockport nor as bright as the Wigan brand. It is usually sold 28 inch, 30 yards, 72 by 52, and invoices at 15⅜ cents a yard, less 2½ per cent discount. Practically all of these come from England.

White cotton duck, while not as popular for men's white suits as the white drills, is imported in large quantities. The duck is a heavyweight, close-woven fabric, of a stiff, hard feel, and has great wearing qualities. It is made of coarse two-ply yarns, and is a plain woven cloth. It is used in general for sails, tents, awnings, outing suits, etc., ranging from 7 ounces to the yard, 27 inches wide, to 25¼ ounces to the yard, 60 inches wide. That mostly imported into the Philippines is the white cotton duck, and is the 28-inch, 96 by 72, 30-yard, 7 ounces to the yard quality, and is used for men's white suits.

The present price is 13½ cents to 15 cents a yard f. o. b. Liverpool. For these suits the cloth is made of bleached yarn, and it is heavily starched afterwards. Practically all of this cloth comes from England, but this trade should go to the United States. Of 7-yard gray duck unbleached, imported, the present invoice price on 24-inch, 30-yard, goods is $2.19 per piece, which is about 7⅓ cents a yard. This comes 60 pieces, or 1,800 yards, to a case. Most of this white duck is 28 or 28½ inches wide. Some comes in lengths of 30 yards, but most of it is 70 to 80 yards long and 10 pieces to a case. The lengths are very variable; for instance, one case noticed had 10 pieces of 66, 66¾, 67, 68⅛, 76, 77, 78, 78½, 79, and 79⅛ yards, respectively. It was invoiced at 22.305 kilograms per 100 square meters, which is about 5⅓ ounces to the yard.

BETILLES.

Betilles is a Swiss muslin of large mesh, and is one of the four main textiles imported into Manila. Immense quantities are brought in. It is not difficult to make, and would be a new line for American manufacturers. At 10 cents a yard for 44 by 32 end goods, even considering the bleached yarns, it should pay. It is evidently paying the Swiss and British, and if carefully figured out it might, even with higher labor, leave a good margin of profit to Americans. These goods are called "betilles" on the invoices received from Zurich, and are so known to the Spaniards, but the Chinese shopkeeper here usually refers to them as "Swiss muslin," or muslin for mestizas. Mestizas usually means half-breed, but is here used as meaning the waists and scarfs made of this kind of goods and worn by the women.

Practically speaking, this betilles is a mosquito netting stiffly starched. The construction is the same both ways, and consists of three threads and then a space, then one thread and then a space, and then three threads again. The three threads running each way form open squares about ⅛ inch each way, which are split into four smaller open squares by the single threads. This is the construction of the great bulk of these goods. Other constructions have stripes formed by the warp for a space being closer reeded, giving a close and then an open construction. Others have figured work, dots, circles, small birds, etc., formed of colored threads over the main body. The ornamentation of a fabric, where the ground weave is a plain weave and a thick colored end, in forming figures on the surface, is done either by means of lappets, where the figures are inserted by means of extra warp threads that form the figures and then float underneath until the next figure is to be formed, these floats being afterwards cut off, or else by means of swivels, where extra filling is used for forming these patterns, and which is inserted by means of small

shuttles about 4 inches long that are attached to the slay cap and lowered into the warp at intervals by means of a rack and pinion.

These betilles are either plain white, piece dyed, striped, checked, printed, or ornamented as stated. The larger part comes from Switzerland, but recently England has begun shipping large quantities of the printed betilles, and most of this kind are now imported from Liverpool. England is also shipping a good deal of 48 by 48 printed muslin—that is, split goods about 20½ inches wide—and though it looks more like a cheap openwork shirting print than a betille, is, on account of its cheapness, coming into use to a certain extent as a substitute. This is regularly reeded and picked, while the betilles, as heretofore noted, have squares made by three and then one thread each way.

SPLIT GOODS—DYED AND PRINTED MUSLIN.

The regular betilles are all made 104 centimeters (about 41 inches) wide. They were coming in 52 centimeters wide (about 20½ inches), but were split goods, and as split goods now pay 100 per cent surtax their importation in the narrow split widths has stopped. They come now in the full widths, which is really preferred by the natives, as it gives them a better chance to cut their patterns in larger size to suit themselves. The lengths are always 5 varas, which is a 4½-yard piece. Each piece comes neatly folded and labeled, and is sold in the bazaars and stores only in these short pieces—never by the yard. The usual construction is about 46 warp ends and 32 picks per inch, though of course this varies. The number of pieces to the case also varies from 350 to 550, averaging probably about 450 of the 4½-yard pieces, say 2,050 yards to a case. These goods run from 6.75 to 8.5 yards to the pound.

The plain piece-dyed muslin is mostly pink or yellow, also some blue and blown. It now invoices at about 27 to 32 cents per piece, which is about 6 to 6½ cents a yard. It retails at about 35 to 40 cents per piece. Striped muslin is made with dyed yarn, at least the stripe effect. The Swiss invoice this as "betilles rayees," at about 34 to 38 cents per piece. If the stripes run both ways, forming check or plaid designs, the Swiss call them "betilles a carreaux," and the invoice prices now run from 36 to 40 cents per piece. There is also a good deal of the "betilles crodees," which is the figured muslin, made with lappet or swivel weaving, forming floats on the main body of the weave. This invoices at from 35 to 50 cents per piece, and retails at from 45 to 60 cents per piece.

Of the printed muslin, of which there is still some on the market 20½ inches wide and 9 yards long, all now coming in is 41 inches wide and 4½ yards long, the invoice price from England runs from 25 to 35 cents, according to quality, and the retail price runs from

about 30 to 45 cents. This is for a 4½-yard piece, the few 9-yard lengths being double this. These betilles are used by the native women as shirt waists, and are usually worn with an extra V-shaped piece, made of the same material, thrown around the neck like a knotted handkerchief. The fabric is always stiffly starched, and, this making the bodice and the wide sleeves stand out, a woman in full dress takes up quite considerable space. The wearing of cotton print skirts, with a "surang" overskirt tucked into the belt, and this betilles shirt waist, now forms the distinctive dress of the Filipino women.

As noted elsewhere, the natives weave piña and other cloths that resemble betilles, but are usually of higher quality, made from hemp, pineapple, and other fibers These open muslins have somewhat the look of mosquito netting, and as they are worn stiffly starched, standing out from the bare shoulders and arms, it serves the same purpose, and was probably originally used for this reason.

MOSQUITO NETTING AND NETS.

In a tropical country like the Philippines mosquito netting is almost a necessity and is largely used. All of this comes from Manchester and is made from bleached yarns. The favorite mosquito netting is one having a bar effect, five picks, then a space, and then five picks again. This comes in cases of 50 36-yard pieces to a case. Some comes in 9-yard lengths and 200 pieces to a case. The widths are various, but usually 34 or 42 inches. The price ranges from $1.34 to $2.56 per 36-yard piece f. o. b. Manchester, which is 3½ to 6 cents a yard. A sample of the average-priced mosquito bar netting forwarded is 42 inches wide, comes in 36-yard pieces, is 44 by 26 ends per inch, and sells for $1.50 f. o. b. Manchester.

White cotton nets for wearing purposes, made into outer shirts, have small hexagonal spaces and invoice for 3½ cents per yard, less 15 per cent discount. These are made in England and come mostly in 27-inch widths.

COTTON PRINTS.

Cotton prints is the sole textile import in which the United States predominates in the Philippines, with the possible exception of Turkey-red shirtings. One reason of this predominance is that yard for yard American prints are better value to the consumer, honestly made of good cotton, not so heavily sized, faster colors, and as cheap as the English. Some complain of the too glaring designs on some of this, and, in fact, a plain print in bright red, yellow, and sickly green is not elevating, but I have canvassed the whole market and know that as a whole the American designs are better than those of any nation competing here. An exception should be noted in the case of the French, who, however, ship here only the finer grades.

The main reason given by several native merchants for buying American prints was that the colors were faster.

Another reason of the present predominance of American prints is the favoring tariff. Last year, through some error, the tariff was made to discriminate against American prints, which were unable to get in, but this has been changed and now the sales of American prints are increasing rapidly. For the last six months of 1906 there were more prints brought in here from the United States than in the whole of the previous year. Nearly $150,000 arrived during the month of November alone. Before the tariff change the English and Spanish imported large quantities of what are known as "splits." These were prints woven on the loom, 47 inches wide, and then split down the center into two pieces. This made them cheaper to manufacture. For the purpose of guiding the splitting or tearing down the middle usually two or four warp threads were omitted at this point. A false selvage was usually given the split cloth by the warp threads for a space on either side of the split being doubled up; that is, run two ends to a heddle eye and four to a dent. Under the law recently promulgated (act of February 26, 1906), "splits" are regarded as cloths improved in condition, and are liable to a 100 per cent surtax. As the regular duty on prints runs from 25 to 35 per cent of the value, this, of course, is prohibitory, and the goods must keep to the full width; and for wide goods to get the lowest duty they must weigh at least 10 kilograms per 100 square meters, so they have had to size heavier to come up to this requirement, and this has deteriorated the quality.

Under the head of cotton prints there is a wide range of goods, from the ordinary printed calico to others, such as printed T-cloths, printed Turkey reds, shirtings, drills, lawns, muslins, cambrics, flannels, crapes, sateens, reps, lenos, etc., and there are many and various finishes. The ordinary shirting print, 24 and 25 inches, comprises the bulk of the prints imported. These are used largely for shirts, and in fact printed calico skirts, sarong overskirt, and a Swiss muslin shirt waist is the regular costume of the Filipino woman.

COLORS AND PATTERNS.

These prints come in various lengths, usually from 30 to 40 yards. Prints in which red predominates are well liked, and such designs as horseshoes, fans, tennis rackets, large dots, vine effects, blocks, stripes, etc., are very common. Of the extracted prints, the solid black with white flowers and scroll design are common. On Turkey reds the main designs seen are horseshoe and anchors and scroll designs. The horseshoe pattern especially is seen everywhere, and Turkey-red prints are worn both by the women for skirts and the men for trousers. Red is a favorite color in the Philippines in any goods. Blues are

also popular. Check and plaid designs printed on calico come mostly from England, also prints in imitation of madras. The French prints are mostly delicate shades and largely sateens.

The cheapest prints, 24 inches, 64 by 40 ends per inch, are from Japan, and the finest, 30 inches, 112 by 112 ends per inch, from France. Manchester touches both extremes, shipping 20.6-inch goods, 52 by 40, at 3¼ cents a yard, and 30-inch, 100 by 88, sateens at 11 cents a yard. The American prints invoice at 3 to 5 cents a yard. According to invoices from England, the average cost of printing is about seven-eighths of a cent a yard for 24-inch calico. Samples of some of the most popular prints now on the market have been forwarded for inspection. Included in these are a few split prints, but of these there are very few now being brought in. The "Garner" finish is liked the best. Sateen prints are preferred, but are too high priced for common use; this finish, giving a soft, somewhat satiny feel, is very popular. As illustrating the range the following are some of the prints that came in during November and December and that are popular patterns:

DESCRIPTION AND PRICES OF PRINTS ON MANILA MARKET.

Description	Where manufactured.	Width.	Ends per inch.	Invoice price per yard.	Yards to the pound.
		Inches.		*Cents.*	
Plain prints					
White ground red dot stripes and horseshoes	United States.	23¾	68 × 52	3.05	7.35
Black ground white dot dots	do	24	68 × 52	3.15	6.33
Blue ground white dot dots	England	24	64 × 48	3.62	.....
Lavender ground wavy design and dot dots	United States.	24¼	72 × 58	3.65	6.85
Black ground small leaf and yellow dot figures	do	24	68 × 56	3.70	7.00
Blue bars and flower design	England	29½	68 × 64	4.00	.....
Various width red stripes with black and white dots	do	24	60 × 56	4.15	.....
Red and white bars and zigzag effects	do	24	60 × 56	4.15	.....
[illegible] plaids broken with bar [illegible]	United States.	24¼	72 × 56	4.25	7¼
[illegible] effect	England	28	68 × 60	5.00	.....
[illegible] effect on white ground	United States.	25	72 × 56	4.3	7¼
[illegible] black circles and leaves on a [illegible] ground	Scotland	23¼	52 × 52	6½	.....
[illegible] ground with wreaths and [illegible]	England	20¾	52 × 40	3½	(a)
[illegible] and [illegible] stripe and small [illegible]	do	30	76 × 64	7½	.....
[illegible] [illegible] and black designs	do	31½	100 × 88	7½	.....
[illegible] [illegible] stripe and small [illegible]	do	30 5/16	80 × 72	7½	.....
[illegible] [illegible] and narrow white [illegible]	do	31½	84 × 76	8.00	5.90
[illegible] [illegible] [illegible] bar flower	France	31 7/16	84 × 72	8.00	.....
[illegible] [illegible] bar dot [illegible]	England	32	88 × 72	8.00	.....
[illegible] [illegible] and white [illegible]	do	25¾	76 × 72	9½	7¼
[illegible] [illegible] [illegible] flower	France	30	112 × 112	11½	.....
[illegible]	England	30	.....	8¾	.....
[illegible]	do	29	.....	12.00	.....
[illegible]	do	29	.....	11¾	.....

a Split goods.

COST OF THE TARIFF MISTAKE.

The effect of the tariff mistake of 1905 was most unfortunate. The American mills had succeeded in building up an extensive trade in American prints against commercial opposition in Manila, and it had taken much thought and effort to capture the market. As soon as the law containing the blunder went into effect the Americans lost what it had taken years to build up. The loss of half a million dollars' worth of trade in one year is a matter of concern when that comprises two-thirds of our textile trade in the Philippines, but the real loss was much more than that, being a loss of customers. Now that the law has been corrected, men who had spent years in building up this trade have had to start their work anew. They are having great success if the few months of the fiscal year can be considered as a criterion. It is a fact that, count for count and inch for inch, the American prints are superior, and the merchants here who are pushing other prints will privately admit this. There has been quite a desire for American prints ever since they came into general use here, and now that the discriminating duties against American prints have been removed, the trade has rapidly increased. During November there was imported over $140,000 worth of American prints, while for the fiscal year ended June 30, 1906, the imports of all kinds of American cotton textiles amounted to only $278,796, as compared with $764,088 in 1905.

SCARVES—SHIPPING EXTRAS—RED SHIRTINGS.

Large handerchiefs and scarves also come printed in lengths and are then cut apart. A piece that is forwarded is 30 inches wide and 26 feet long, containing 12 large squares, with red-flowered borders and red dot and circle centers. Each square is 26 by 24 inches and the construction of the cloth is 64 by 56. This retails at 75 to 90 cents per 12-scarf piece. In shipping prints the English charge for the case and for packing, and sometimes the Americans do also, 2,000 to 5,000 yards being shipped in a case. The American cases usually contain about 2,500 yards. In 7-yard prints the net weight is 357 pounds and the gross about 435 pounds. A recent charge on such a case amounted to $7.23, viz: Cooperage and cartage, 50 cents; stamps and petties, 5 cents; freight prepaid, $3.20; marine insurance, $1.56; bank commission, $1.92. On the English 5,000-yard case the charge for making up and packing runs from $12.15 to $17, averaging about $13.75. As the importing merchant frequently has to figure very close on these goods he dislikes these varying extras that can not be calculated, and prefers a delivered price, or at least a f. o. b. ship price free of such charges as cartage, petties, etc.

The Spanish percales that are brought in are mostly 24 inches wide, some 22½ inches wide, and come in 50-piece cases of 50-meter lengths, or 54.7 yards each. The constructions are mostly 60 by 56 and 60 by 52 ends per inch. The weights run from 9 to 10 yards to the pound. The price is given on the invoices of a recent shipment of 24-inch, 60 by 56 percales, as 27½ silver centimes a meter f. o. b. Barcelona. A gold peseta is 19 3/10 cents, and the present rate between the gold and silver pesetas of Spain would make this price about 3⅝ cents a yard. This is f. o. b. Barcelona, Spain. The market price is about 5 cents a yard, ranging from 4½ to 6½ cents.

TURKEY-RED SHIRTINGS AND CAMBRICS.

Red is a favorite color with the Filipino, especially solid reds. They wear these red shirtings as outside shirts, with white trousers. Filipinos have a disinclination to gird themselves in, so they wear these red shirts outside their trousers, sometimes almost down to the knees. Another favorite combination is red trousers and white shirt. These red shirtings are dyed in the piece, come in widths of 28, 29, 30, and 31 inches, and in various lengths. Turkey-red shirtings come from various countries—England, Scotland, and Switzerland especially—but they are beginning to come in large quantities from the United States. Some recent invoices from Switzerland, with the price per yard, were as follows: 28-inch, 80 by 52, 4½ cents; 28-inch, 56 by 44, 4¼ cents; 28¾-inch, 56 by 48, 3⅞ cents. Invoices from Hongkong were: 31-inch, 64 by 60, at 5 cents per yard. Turkey-red cambrics or solid dyed plain scoured cambrics seem to come mostly from England and Scotland. A recent Scotch invoice shows 30-inch, 64 by 60, 22¼-yard length, at 5¼ cents a yard.

GINGHAMS, CHECKS, AND PLAIDS.

Gingham, one of the most universally known cloths, is a plain woven product having from 50 to 72 ends per inch in the warp and 20s to 40s cotton yarn in both warp and filling. It is a wash fabric, made in an endless variety of colors in both check and warp patterns. In America it is used mostly for summer outing dresses and for aprons. In the Philippines it is used for women's skirts, and some varieties for men's trousers. Nearly all of these goods are stiffly starched after weaving, then run through drying cylinders, tentered, and then passed through hot calender roll, which gives the desired glaze on the face of the cloth. Samples of some of the popular designs
l e been forwarded. The American ginghams are usually 29 inches
but those imported here are in various widths, the greater por-
ing wide cloths, coming from Spain and England. Those
in appear on the invoice as Vichy, but are the same as our

gingham. A recent design from Spain, 5 black, 18 red, 5 black, 9 white, 18 red, 9 white ends in a repeat of the weave (the same each way), 52½ inches wide, 76 by 64 ends per inch, came in 35-yard lengths and was invoiced at 12½ cents a yard. One from Amsterdam, in a blue, black, and white large check design, 48 inches wide, 72 by 52 ends per inch, invoiced at 10⅞ cents a yard, less 2 per cent. Another from Spain, 50 inches, 60 by 56 ends per inch, in a more elaborate pattern, using red ground and white, blue, yellow, and black check effects, invoiced at 15 cents a yard. One of the few American ginghams on this market is 29-inch, 60 by 48, 6.8-yard goods, and invoiced at 4½ cents. This is 10 black, 4 white, 2 red, 4 white ends each way. Another that is very popular is a 29-inch, 60 by 56, 7-yard goods, invoiced at 5¼ cents, and constructed 4 green, 2 red, 4 green, 6 white, 4 green, 8 white, 2 black, 8 white, 4 green, 6 white, each way.

FANCY AND COARSE GINGHAMS.

Of the higher priced fancy gingham from Barcelona a favorite pattern is made with warp 14 ends purple, 2 white, 14 purple, 2 printed black and white, 6 white, 1 printed orange and white, 1 printed green and white, 6 white, 2 printed black and white ends. The filling is 6 purple, 4 white, 6 purple, 12 white, 2 purple, 12 white ends. This makes a pretty dress pattern resembling madras. It is 52 inches wide, 72 by 68, 4½ yards to the pound, packed fifty 36-yard pieces to a case, and invoices at about 16¾ cents a yard.

There is a good deal of cloth invoiced here as "carranclanes" that is practically a narrow gingham. These are mostly 24 inches, though a few invoiced as carranclanes are 50 inches wide and are made in both check and plaid designs. A favorite pattern is a plain check consisting of 18 white and then 18 colored ends each way, the usual colors being red, blue, or yellow. This 24 inch, 60 by 44 ends per inch, invoices from England at 4¼ cents a yard, and 60 by 60 at 5½ cents a yard. Some of the fancier effects are made with printed yarns and invoice as high as 15 cents a yard for the wide 50 inch. The usual length of these carranclanes is 20 varas, or about 18.5 yards.

Of the coarse cotton plaids a usual width is 40 inches, 52 by 44 ends per inch, and invoice price 7 cents a yard. The widths vary, however, a good many being imported 23 inches wide. Lengths vary also, but the most usual length is 20 varas, or about 18½ yards. The 23 inch, 60 by 48, invoice for 58 cents per piece, or 3⅛ cents a yard. These plaids come in fairly large quantities from Amsterdam and Manchester, with a few from Vienna, Barcelona, and other places. The fancy checks are mostly from Manchester, 28 inches wide, fifty 24-yard lengths to a case, 48 by 44 ends per inch, about 10 yards to the pound, and invoiced at 7 cents c. i. f. Manila. A cotton Arabia

check that is often seen consists of two red and two white ends each way, but each end is woven separately, giving somewhat of a star check effect. This is 23¾ inches wide, 60 by 52 ends per inch, and invoices at 95 cents per piece of 24 yards, or about 4 cents a yard. Oxford checks, 28 inches, 56 by 40 ends per inch, invoice at $1.09 per 24-yard lengths, or about 4½ cents a yard.

POPULARITY OF COTTON STRIPES.

Coarse cottons in stripes of various styles are well liked. A blue and white stripe that is perhaps the most common of all is a plain woven goods with 2 blue and 2 white warp ends, solid blue filling, and usually an eighth of an inch red or white selvage. The English invoice this as blue striped cottons, 24 inches, 24 yards, 84 by 52 ends, at 6 1/16 cents per yard. Similar goods from Spain are labeled regrettas, 25 inches, 27 yards, at 4¾ cents a yard (a little coarser construction), and the Swiss invoice it as rayadillos, in 48-inch widths, 20 varas (18½ yards), at about 12 to 14 cents a yard. Various styles and weights of this pattern are used for trousering, dress goods, furniture coverings, etc. Red striped goods are also greatly used for trousers, shirts, women's skirts, etc. A 2 white and 2 red warp end, solid red filling, coarse cotton goods, from India, retails at 5 cents a yard and is 29 inches, 40 by 40 ends per inch. A favorite red striped pattern that is often seen has solid red filling, with the warp arranged 25 red, 4 white, 4 blue, 25 red, 2 yellow, 4 black, 1 white, 2 blue, 4 black, 1 white, 2 blue, 4 black, 1 white, 2 blue, 4 black, 2 yellow ends in a repeat. This comes from Amsterdam, is 40½-inch, 45-yard, 52 by 48 goods, and invoices at 10½ cents a yard.

"Hollandas," stiffly starched, coarse, striped cottons, are made with white filling, and such patterns as 9 white, 2 black, 9 white, 4 black; or 7 white, 1 blue, 1 red, 1 blue, 1 red, 1 blue, 1 red, 1 blue. These are 24 inches wide, and mostly 64 by 44 construction, the present invoice price from England being 4⅛ cents a yard f. o. b. Liverpool. A small amount of convict stripes comes from England, but the cotton mill at Manila now makes most of this. The invoice price from England is 5½ cents a yard for 28-inch, 52 by 44, 50-yard goods. The stripes are 1-inch filling stripes, the warp being solid black, and the filling alternately 44 white and 44 black picks.

SARONG PATTERNS AND GRAY CLOTH.

"Sarongs" and "patadeones" are words that the average American manufacturer never heard of, but they are familiar terms in the Philippines. The Filipino women wear skirts of cotton prints, but outside these they throw around them a "sarong," as the Moros call it, or "patadeone," as the Tagalogs usually call it, which is simply

a loose fold of cloth tucked in at the belt and usually with one corner tucked up. The cloth used for this is sometimes a check, but usually a striped pattern, and comes from Spain. These usually come cut up in 6-yard lengths with stitched edges, but are sometimes shipped in the piece and made up afterwards. There are usually 200 sarongs or 1,200 yards to a case.

A sarong pattern that is often seen has a dark-red filling, and warp arranged 4 black, 8 purple, 24 black, 8 purple, 4 black, 2 yellow, 4 black, 4 purple, 4 black, 4 purple, 4 black, 2 yellow ends, or 72 ends in a repeat. This has a 2-inch black warp border on each side and a 3 white, 2 red, 3 white selvage woven with double ends. This cloth is 4½ inches wide, 60 by 40 ends per inch, and weighs 161 kilograms per 1,200 yards, which is about 4.75 yards to the pound. The present invoice price at Barcelona is about 11.75 cents a yard.

"Gris," or gray cloth, is imported mostly from Manchester, and is a favorite cheap dress goods. It is made with solid white warp and blue or black filling. It comes 30 inches wide, 24-yard lengths, 100 pieces to the case, 76 by 68 ends per inch, and invoices at 5 to 6½ cents a yard. A finer grade of this, made with solid blue warp and white filling, has finer yarn and is tentered and given a glazed finish on the calender rolls. It is invoiced from Manchester as cotton lusters, at 6¾ cents a yard.

DYED BROCADES—UMBRELLA CLOTHS.

Brocades and damask fabrics are imported to a certain extent, mostly from England, for dress goods, upholstery cloth, table covers, towels, etc. Dyed mercerized cotton brocades are imported as dress goods. They come in widths of 23½ to 25 inches, and recent invoices show 8⅞ cents a yard in 23 inches, 108 by 80 end; and 10¾ cents in 23½ inches, 128 by 108 end constructions. These were the usual leaf, flower, and bud designs, and the colors are light delicate pinks, greens, blues, and yellows. A solid blue 44 inches, 112 by 88, was invoiced at 14½ cents from England. A rich brown dyed brocade from Vienna, 44 inches, 120 by 84, was invoiced at a price corresponding to 18½ cents a yard, less 3 per cent. The foregoing were all lightweight dress goods.

In black-dyed cotton brocades a 28-inch width was invoiced at 12 cents and a 43¼-inch width at 19 cents. These were not mercerized but had the usual brocaded patterns. A good many black brocades are also imported for umbrella cloth.

Umbrella cloths are, comparatively speaking, a large importation, and are usually made either of long staple Egyptian or mercerized cottons. They are either dyed mercerized brocades, dyed cotton Italians, black satins, black figured, twilled, or simply plain cotton um-

brella cloth. The black brocade cotton umbrella cloths are mostly 75 or 90 yard lengths, 37½ inches wide, and invoiced in England for $13.32 per 90-yard piece, or 14⅘ cents a yard, less 2½ per cent in the gray, with an additional charge of 4 cents a yard for dyeing.

Black satin umbrella cloths are in 75-yard lengths, and either 37 or 44 inches wide. The 37-inch invoices in the gray at $7.53 per 75-yard piece, or 10½ cents a yard, less 2½ per cent, and the dyeing charge is 2½ cents a yard. The 44-inch invoices in the gray at $8.51 per 75-yard piece, or 11⅓ cents a yard, less 2½ per cent, and the dyeing charge is 3 cents a yard. The dyed Italians are made for umbrella cloth up to 42 inches and invoice at 12 to 19 cents a yard. The black twill cotton-umbrella cloth costs, in 44-inch widths, $10.22 per 75-yard lengths, or 13.6 cents per yard, less 2½ per cent in the gray, with a charge of 2 to 4 cents a yard for dyeing.

ITALIANS, WOVEN FANCIES, ETC.

Dyed cotton Italians, especially the plain, fast black Italians, the figured, and brocaded, are very popular in China, but are little used in the Philippines. Even the Philippine Chinese discard it for white clothes, and the total amount imported is not large. The largest importation seems to be of a cheap grade, invoicing at 5¼ cents for a 24.8-inch width and 6¾ cents for a 31-inch width.

There is a moderate quantity of woven fancies imported, mostly for women's shirt waists, etc. A favorite pattern consists of a white bleached cotton ground and mercerized pink or yellow stripes of plain, basket weave, or twill design. A sample forwarded is 26.6 inches wide, 84 by 68 ends per inch, and invoices at 9 cents a yard. Printed yarns of various colors are also largely used in these designs in connection with the mercerized stripes. A figured mercerized fancy, solid light green, that is used for upholstery purposes, being really a damask, 24 and 25 inches wide, 100 by 44 ends per inch, put up in sixty 30-yard pieces to a case, invoices at 13¾ cents a yard. Figured piques are also used for dress goods. These come mostly 29 inches wide, in 30-yard lengths, and invoice at 15 to 16 cents a yard, less 2½ per cent. This is the finer quality. Cheaper piques invoice as low as 7 cents a yard. A "pique" or "Marseille" is a quilted weave, being a double cloth with a face of close, plain weave, and back of open, plain weave. It has a corded effect, and is frequently known as Bedford cord. Bedford cords are also made with one beam, using 16 heddles on a dobby loom. Piques, plain and figured, are used for dress goods, vestings, counterpanes, etc. A bl[illegible]ique, with double corded effect every half inch, invoiced at [illegible]ard. A fast aniline black cord pique, 27 and 28 inches, [illegible]out 3½ yards to the pound, invoices 14¼ cents a yard.

A black mercerized leno and brocade fancy, 27 inches, 38½-yard length, 4¼-yard goods, invoices from England at 15 cents a yard.

Cannette, which is a fine corded dress goods from Milan, comes in 50-inch widths, and is invoiced at 25 cents a yard. Merinos are mostly 25 and 25½ inch widths. A fine quality, 120 by 96 ends per inch, from Milan, invoices at 14 cents a yard, less 5 per cent, while a coarser, 64 by 36 merino from Amsterdam was invoiced at 8½ cents a yard.

MADRAS.

There is a small amount of madras brought in from Spain and England. Madras is a staple goods that is used for men's shirts, shirt bosoms, ties, etc., and by ladies for summer skirts, shirt waists, suits, etc., also for drapery. It is a light-weight cloth, the yarns ranging from 26s to 80s, and is known by the plain white ground and fancy colored narrow stripe warp effects. Frequently along the edges of these stripes are one or two warp ends of printed yarn. This is a wash fabric, so fast colors are necessary.

The majority of the madras is made with plain weave, and the stripes are also plain, but colored, while others have stripes made by doubling up in the heddle and reed, putting two ends to a heddle-eye, and four or six to a dent. Other fancier designs have narrow twill stripes. The stripes are usually delicate shades of blue, pink, green, lavender, etc., and for hair-line effects somewhat richer colors, such as cherry red, dark green, black, etc. There is not a large importation of such goods, but the usual weight is about 4½ yards to the pound for wide goods, 52 inches, or about 10 yards to the pound for 27-inch goods. The retail price is about 15 cents a yard for the narrow and 25 cents a yard for the wide goods, but as the varieties vary these prices vary correspondingly.

Indian madras is not the light-weight, narrow-striped, fancy shirting known as "madras," but is heavy, coarse cotton goods imported from Madras, India, and invoiced simply as madras goods. Most of this is about 10s to 14s warp and filling, and made with white warp and a solid blue, black, gray, or a brown and white mock-twist filling. A heading or cut mark is usually woven at the end of each piece, of two to four filling stripes an eighth of an inch wide, either of red, white, or yellow filling. It also comes in check and plaid effects, the latter practically being the same as an osnaburg. The cloths imported as madras goods are all coarse cottons, but vary in width and price considerably. The lengths are mostly 24 yards. Some recent invoice prices show a 28-inch, 8-ounce, plaid effect, 44 by 40 ends per inch, at 5½ cents a yard; a white warp, blue filling, 29½ inch, 44 by 40 goods, at 4½ cents a yard; a 31-inch, 56 by 48 goods, at 6 cents a

yard, made with white warp and mock-twist brown and white filling, and a 50-inch, 40 by 36, white warp and dark-blue filling, at 9 cents a yard.

COTTON CREPES—A JAPANESE INVOICE.

Cotton crepe is a light-weight wash fabric, a single cloth, the peculiar feature of which is an all-over crinkly or rumpled effect, which the cloth retains until worn-out. Sometimes this is produced by the weave, but usually it is a plain cloth and this wrinkled appearance is produced by using extra hard-twisted filling, about 40 per cent more twist than usual being put in. What is called standard twist is usually taken as 3.25 times the square root of the number of filling, but for crepe the constant 5.50 is used instead. Thus, the regular 6s filling has 13 turns twist to the inch, but for crepe it is made about 22 turns to the inch. The warp is spread out about 30 per cent wider in the reed than is desired in the finished-cloth width, and the hard-twisted filling draws it down to the right width and produces the seedy, crumpled appearance. The cotton crepe imported into Manila comes mostly from Japan, with some from England, and is either white, piece dyed, or striped. The regular width is 29 or 30 inches and length 20 or 24 yards. Usually about 50 pieces are packed in a case. A recent invoice of bleached cotton crepe from England was 30-inch, 24-yard, 72 by 48, goods, at 6½ cents, and the same goods from Japan (the bleach is not quite as good, however), were invoiced at 6 cents a yard.

From Japan cotton crepe dyed in the piece, 30 inches, 20 yards, 76 by 44, 4½ yards to the pound, was invoiced at 7¼ cents a yard, while another brown-dyed piece, made of finer yarn, 29 inches, 24 yards, 68 by 68, was invoiced from England at 9¼ cents a yard. Striped cotton crepe from Japan, 30 inches, 20 yards, 68 by 36, was invoiced at 8 cents a yard. The ordinary stripes used are such effects as 16 red and 16 white ends, or 6 blue, 4 white, 6 blue, 4 white, 6 blue, 12 white, 1 blue, 12 white, 1 blue, 12 white, 1 blue, 12 white ends, the filling in both cases being white.

SAMPLE JAPANESE SHIPMENT.

A recent invoice of cotton crepe from Kobe, 20-yard lengths, shows the number of extras that an importing merchant sometimes finds himself liable for and which can not be calculated in advance. Some European extras are even more multitudinous, but this from Japan is given simply because it is in concise form.

The invoice was of 10 cases of striped cotton crepe from Kobe. Four cases white crepe, 200 dozen pieces, $314; 2 cases of cotton crepe, 100 dozen pieces, $159; 4 cases of striped cotton crepe, 200 dozen

pieces, $284; total invoice value $757. The charges were as follows: Boxing and cooly hire, $1.74; biscum income tax, 76 cents; Chinese club fee, 76 cents; clerical fee, $1.49; consular fee, $2.51; marine insurance, $7.40; freight paid at Kobe, $13.26; commission agent's fee, 1 per cent of the invoice value, $7.58; revenue stamp, 1½ cents; total, $35.50.

In addition the duty is always paid by the importer. The above were mostly about 4½-yard goods, about 68 by 36 ends per inch, and so fall under paragraph 117 B of the Philippine tariff and pay 14 cents per kilogram plus 30 per cent. The surtax of 30 per cent is added on account of the dyed yarn stripes. This comes to $182 (1.84 cents a yard). Adding, say, $4.98 for unloading and drayage, etc., at Manila and we have: Original invoice price, $757; charges, $35.50½; duty, $182; costs at Manila, $4.98; total, $979.48½; that is, say, 30 per cent above the original invoice price that the goods cost the importer on his shelves. Allowing 10 per cent for the cost to the merchant of carrying these in stock, interest on his money, store costs, etc., and 15 per cent clear profit, the merchant therefore has to sell the goods at least 55 per cent above the invoice price. The invoice price was $757 for 10,000 yards, or 7.6 cents per yard; so the selling price in Manila will be, say, 12½ cents a yard. I priced striped crepe of apparently the same quality in the Manila retail stores and found it quoted at 11¼ to 15 cents a yard, proving the above to be approximately correct.

IMPORT OF COTTON TROUSERINGS.

Large quantities of cotton trouserings are imported into the Philippines, mostly from Zittau, Germany; Zurich, Switzerland, and Manchester, England. These come in various lengths, 24 to 40 yards, but are practically all 48 inches wide. A dark-colored check from Manchester, 64 by 64 ends per inch, is now invoiced at 15 cents a yard. A black-and-white check, a favorite pattern, from Germany, 64 by 56 ends per inch, invoices at 16 cents a yard, less 3 per cent and 2 per cent. A dark plaid effect, also from Germany, 68 by 48 ends per inch, invoices at 18½ cents a yard, less 4 per cent. From Switzerland, what we know in America as the common "pin-head" check, 68 by 58 ends per inch, invoices at, say, 14 cents a yard. A finer and smoother pin-head check, 84 by 76, invoices at 15 cents a yard, less 5 per cent.

The samples of trousering that have been forwarded show the present range of designs fairly well. These are all imported from Europe, though at present prices the United States could well afford to compete. Some of these trouserings are napped on the underside, and some are woven with a quarter-inch green selvage; others, however, are nothing but cheap cottonades, and others, again, classed as

trouserings, are very similar to the 4-yard plaids and cassimeres that are made in large quantities by some of our southern mills. The cheaper pin-head check pattern is exactly the same as that which is used in the United States in large quantities for overalls. These goods are 48-inch, but at prevailing prices a good many of them (not all, as some are very cheap) could be made in the United States and shipped here at a good profit, and it would pay American mills to put in wider looms and try some of the wider class of goods that are in demand in the Orient. At present very few American mills make as wide goods as these.

Most of the cotton trousering is plain woven. A few are fancy patterns. Some are plain weave with twill stripes and others are made with warp and weft checks made by the weave instead of with colors. Granite weaves and spot-figured weaves are also used, but the greater portions are plain woven cottons.

PURCHASES OF LASTINGS, LININGS, AND DRESS FABRICS.

Dyed cotton lastings are imported in moderate quantities, and used for various purposes—linings, etc.—and a good portion of them, also of the Italians, for trousers for the Chinese. Those so used are mostly the stiff glazed or satin woven varieties. Plain cotton lastings 24 inches wide, 27½ yards long, 64 by 52 ends per inch, 100 pieces to the case, invoices at about 3.25 cents a yard in Barcelona. This is the cheapest grade of lastings. Black-satin lastings from England run from 8¾ cents a yard for a 27-inch, 40-yard lengths, to 19½ cents a yard for 54-inch, 20-yard lengths. Printed cotton lastings from France seem to be mostly the 31½-inch widths, 43½-yard lengths, and contain 20 or more 43½-yard pieces in a case. These are 76 by 76 ends per inch, 6½ yards to the pound, and invoice at about 8½ cents a yard.

Printed cotton linings are mostly 30 inches, say, 76 by 52 ends per inch, and invoice for about 5½ cents per yard less 2½ per cent. They come from England. Used for about the same purpose as the glazed colored percaline or dyed embossed shirting; these come in various colors and are mostly 60 by 60 ends per inch, 30 inches wide, and invoice at 5¼ cents per yard.

Tussores is a fine dress fabric with a lustered corded effect. Most of these use mercerized yarn, and the corded effect, the weave being plain, is produced by using filling twice as coarse as the warp, and then constructing this cloth with twice as many ends per inch in the warp as in the filling. It is mostly 25 and 26 inches wide, 72 by 36 ends per inch, and comes from England. The present invoice price is 19½ cents per yard. It is also constructed with narrow basket-weave stripes, 27 inches wide, 112 by 100 per inch, invoicing for 12½ cents per yard.

Repp is a high-grade dress goods, and like the tussores has a lustrous corded effect, but is made of finer yarns. This cord is also produced by using coarser filling and twice as many warp as filling threads. Nearly all the repps used are plain goods, and there is little of printed repps imported. The usual cloth runs 35.8 inches, 48 yards, 100 by 48, and 15 pieces to the case. Present invoice price is 17 cents per yard, less 4 per cent and 2½ per cent.

COTTON VELVETS.

The cotton velvets come from Germany and England. The total quantity is not large—not over $500 per month. These are mostly black and red, also some other colors, such as blue, yellow, purple, and claret. These velvets are 22 inches and under, running mostly 20½, 21½, and 22 inches wide. The lengths vary greatly; thus one shipment of which I saw the invoice had pieces of lengths of 23, 23.67, 23.82, 24, 27.27, 32½, 33.12, 34, 34.54, and 37 yards, respectively. It will be noticed that the lengths are figured down very closely. The average length is about 30 to 35 yards, and 670 yards or thereabouts to the case. Velvets, as is well known, are woven wide and then split into two or three pieces. This brings them under the head of split goods and doubles the tariff rate. As velvets are not made in the United States, except to a very limited amount, this enhanced cost does not help the American manufacturer, and if anything it does him harm, as it diminishes by that much the ability of the native to buy goods that he otherwise might from the United States. The present invoice on ordinary English velvets 20½ inches wide, split down one side—the ordinary silk-finished velvet—is 11¾ cents a yard. To this are added freights and other costs, such as marine insurance, boxing, etc., making net cost to the importer, say 15 cents a yard, so this velvet sells on the market at about 17½ to 20 cents, or more, a yard. A little finer finish invoices at 14 cents a yard from England. The printed cotton velvets nearly all come from Germany, especially the metal prints. Like English velvets, they vary greatly in length, mostly 29½ to 38½ yards. Widths are mostly about 21¼ inches, and usually 20 or 21 pieces to a case. A black scroll-printed velvet, simply a hot-press design, invoices from Crefeld, Germany, where most of the velvets come from, at 18 cents a yard, in 22-inch width. Another having small green bronze dots printed on a black velvet 19½ and 20 inches wide was invoiced at 20 cents a yard, less 2 per cent discount. Another 19½ and 20 inch velvet, in 24-yard lengths, colored and bronze printed, invoiced at 20 cents a yard, less 2 per cent for one bronze, and the same goods at 24.7 cents a yard, less 2 per cent for two bronzes. In the first case the design, which was small leaf effects on a blue ground, was stamped in silver color, and in the last both gold and silver colors were used.

TRADE IN PLUSHES.

The cotton plushes are usually about 24 inches wide; lengths mostly 32 to 37 yards, averaging probably 35 yards; weight per yard, 1 to 1¼ pounds, a case of 700 yards usually weighing about 174 pounds. The present invoice price of the better grades of German plush is about 45¾ cents a yard. On most of these velvets not only is there a charge for the boxing, but also a charge for labels and wrappers; the labels often being made to order and being ornamented gilt work are charged for separately. This usually runs $3 to $4 a case, which is added to the above invoice price, making, say, half a cent a yard more. Besides their use in furniture, etc., these plushes are mainly used for making slippers. The Filipinos, both men and women, wear these plush slippers constantly as their regular footgear, though the men are beginning to discard them for the American shoe.

Schappe plush, 24.8 inches wide, was marked in a recent invoice from Crefeld at 32 cents a yard, less 1 per cent discount. Another invoice of half-silk plush, of which there is a good deal used, 18 inches wide, was invoiced at 34.8 cents a yard, less 4 per cent.

COTTON FLANNELS AND FLANNELETS.

Cotton flannels are imported in fairly large quantities for outing flannels, for bed clothing, curtains, etc. The largest proportion is probably from England, with Japan and Spain next. A moderate amount comes from the United States, but it does not, as it easily could and should, monopolize the trade. Cotton flannel is a soft woven fabric, either plain or twill weave, and napped on one side, sometimes on both. The twill weave, having longer floats, gives a better surface to raise a nap; the filling is slack twisted, and the warp very lightly sized. For winter wear the 3 up and 1 down twill is ordinarily used, and for summer wear the 2 up and 1 down twill; this for the reason that the longer floats on the first permit of a longer nap. The cotton flannels mostly imported into the Philippines are light-weight outing flannels. They come in 25-inch widths, plain and striped. A 25-inch, 64 by 48 quality, bleached, is invoiced by Manchester at 5 cents a yard, and a 24.8 inch, 72 by 72 quality, striped, is invoiced at 6⅞ cents a yard. A dressy, twilled, mercerized cotton flannel, striped, 25 inches, 80 by 68, invoices from Manchester at 7¾ cents a yard.

Flannelet is a soft, narrow, light-weight fabric, with a light nap on both sides. The filling is very soft and fine. Bleached yards are used, but the flannelets mostly imported here are solid colors, being piece-dyed, delicate shades of sky blue, rose red, salmon, lilac, light

green, etc. A small amount is printed. Flannelet is used for wrappers, kimonos, etc., and is a wash fabric. Recent Amsterdam invoices show a price of 6 cents a yard for piece-dyed, 25-inch, 52 by 48 flannelet.

BLANKETS AND TOWELS.

Being a tropical country, heavy woolen blankets are not ordinarily needed in the Philippines. The nights are moderately cool, however, so light blankets are used, and for this the cheap, light-weight cotton blanket is the best, and these are imported in good quantities. They come mostly from England and Spain. These are mostly piece-dyed, but some are striped and some are in plaid designs. For the solid dyed the favorite color is red, then gray, khaki, blue, salmon, etc. The lightest varieties are practically flannelets, while the heaviest kinds are only medium weight. Forty-eight by 60 inches is an ordinary size, though longer lengths are used. Forty-eight inches is the regular width. On the piece-dyed medium-weight cotton blankets the present invoice price from Rotterdam is 25.7 cents. These blankets retail at 50 cents each. The striped blankets are invoiced at present at 32 cents gold, and retail at 50 to 75 cents each. There are scarcely any American cotton blankets on this market, but the trade is growing and worth looking after. Filipinos who formerly were content to sleep on matting now aspire to a couple of blankets for their bed, and the demand is gradually increasing.

On towels the market is divided between England and Japan, the cheaper toweling coming mostly from Japan. A cheap, soft, woven cloth that is imported from Japan is 40 by 32 ends per inch, comes in pieces 13 inches wide and 22 yards long, and invoices at 45 cents per piece, plus all charges, freight, etc. This is retailed in the piece at about $1, and afterwards cut up into towels about a yard long. Some of this is also imported 18 inches wide. Most of this is plain bleached, but some is printed about every yard with a large star or anchor in the center. Some white pique towels, 22 by 48 and 24 by 52, are brought in from England at $2.25 per dozen, but are rather too stiff and not very popular. The regular Turkish towel is imported from both Japan and England. This cloth has two rows of loops, formed by warp of yarn, in regular order on both sides of the fabric. These come in solid bleached towels, having side and cross border color effects, stripe and plaid designs, etc., the favorite colors being pink, red, blue, and green. These invoice at 50 cents to $1.30 a dozen and retail at 15 to 50 cents apiece. The usual size is about 19 by 38 for fringed. The smooth-finish English towels invoice at 25 to 75 cents a dozen and retail at 5 to 15 cents apiece.

WOOLEN SHAWLS, GRENADINE, CASHMERES, AND MOHAIR.

The Japanese, Chinese, and other Eastern women wear no head covering. To a certain extent this is true of the Filipino women also. In damp or windy weather a light shawl is thrown over the head. A good many of these shawls are imported from Germany and Austria, and they come mostly in solid colors—orange, pink, blue, gray, etc. A recent lot of shawls from Reichenberg, Austria, 39 by 43½ inches, square, fringed, packed 50 dozen to a case, was invoiced at $2.03 a dozen and were retailed at 37½ cents each.

A small amount of voiles grenadine is imported from Switzerland, coming in 36 by 50 inch sizes and invoicing at $9.65, less 20 per cent a dozen. This is 96 by 68 ends per inch, with a heavy, close-woven, 3-inch border. This stuff is used by women for scarves, dress materials, etc.

A case received in December of 20-piece black cotton cashmere from Liverpool, 828 yards, 43 and 44 inches, weighing 2¾ yards to the pound, was invoiced at 23¼ cents f. o. b. Liverpool per yard. These were made up in dress folds, wrapped in white lining paper, with blue gray outer paper tied with pink tapes. Lengths were stamped in gold, also marked on hanging tickets.

Mohair dress goods imported are of cotton and wool, and show raised figures on either a plain or a "rep" ground. The color is mostly black, though blue and other colors are also used. The width is 44 to 46 inches and the weight, say, 3¼ yards to the pound. Most of this fabric is brought in from Gera, Germany, and the invoice price is 27 to 31½ cents a yard, less 2 per cent. The yarn used in this fabric is 30s cotton and 40s 2-ply mohair. The black mohair figures come either from Germany or England. A recent case from England was invoiced at 43.4 cents a yard for 42-inch widths.

COTTON HANDKERCHIEFS.

There is a large market for cheap cotton handkerchiefs, also a smaller market for fine qualities. The market is controlled by England, with smaller quantities coming from Spain, Scotland, and Germany, and a few of the cheapest varieties from Japan. Figures, specially made up by the Philippine customs on request, showed $3,432 worth of cotton handkerchiefs imported in the month of October, 1906, so the total yearly importation is probably over $40,000, and worth looking after. These handkerchiefs come plain, scalloped, figured, printed, twilled, dyed, handworked, etc. A dozen samples illustrating the range have been forwarded.

The largest quantity imported is the ordinary bleached cotton handkerchiefs, 17 by 17 inches to 18½ by 18½ inches, and ranging in price from 40 to 70 cents a dozen. Some mercerized kinds, 24 by 24

inches, invoice as high as $1.50 a dozen. Next to the plain white the printed handkerchiefs are most largely imported, coming in sizes 13 by 13, 14 by 14, 15½ by 15½, 15½ by 16, 17 by 17, and 17½ by 17½ inches. Some are printed without borders, simply the edge stitched back for an eighth of an inch, and invoice from 18 to 36 cents a dozen. Others with the regular 1-inch border, with white ground and only the border printed, invoice from 30 to 40 cents a dozen, and still others printed all over, usually flowers on the border and block designs inside, invoice from 45 to 60 cents a dozen.

Dyed handkerchiefs are mostly 15½ by 15½, 17 by 17, or 17½ by 17½ inches and invoice from 40 to 50 cents a dozen. The usual shades are delicate pink, lavenders, or green. Dyed handkerchiefs with twill stripes or with damask woven borders invoice from 40 to 70 cents a dozen and run from 15½ by 15½ to 19 by 20 inches, the larger sizes being frequently used for men's scarves. Bleached handkerchiefs, ornamented with colored flower work, mostly hand stitched, invoice from $1.25 to $1.75 a dozen, 24 by 24 inches, and are used mostly for men's scarves.

KNIT COTTON UNDERSHIRTS.

There is a very large field for knit goods in the Philippines, especially for knit undershirts. These are worn by everybody, and vary in construction from very close knit goods to others so open that they look like mosquito nets. At present this trade is almost entirely monopolized by Spain, with small lots from Germany and England. The bulk of this trade is cheap goods. The usual invoice prices run from $1.50 to $4.50 a dozen. There are some invoiced at 75 cents or under a dozen. It is to be doubted if the United States can compete on the low-priced goods, but there is a good demand for higher grades, and these should be supplied by American mills.

In connection with this matter a couple of merchants related a peculiar incident. The Americans here as elsewhere have a firm conviction that foreign goods are shoddy and that the only genuine articles are produced in the United States. In deference to this opinion the foreign merchants at Manila some two years ago ordered large quantities of American socks and undershirts. When these arrived they were found to be in German boxes and with German labels, some with English labels. The Americans always examine the boxes to see if the goods are genuine, and finding German and English labels thereon refused to pay higher prices for them, and the merchants were left with shipments of high-priced goods on hand that they had to sell at a discount. This was related by two merchants and confirmed by a customs official. The manufacturers probably thought that German labels would help the sale of the goods in a market already opened by Germans, but in this case its effect was

exactly the opposite. If proper effort be made large quantities of American knit undershirts will find a good market in the Philippines. Undershirts come bleached, unbleached, and striped. A number of the usual styles are forwarded herewith. On one of these, a plain white undershirt, the invoice price from Spain was $1.30 a dozen, while the retail price was 30 cents apiece. To get retail prices that will furnish any idea of the invoice price is difficult, as the retailers, especially the Chinese, have a way of buying a stock of various sizes and various qualities, ascertaining the average value, adding so much for profit, and then selling them all at the same figure, regardless of the fact that some may be 30 or 40 per cent better or poorer than others. The average retail price in Manila for cotton undershirts is 40 to 50 cents apiece. One of the better grade of shirts from Zurich, a sample of which has been forwarded, was invoiced at $2.41 a dozen, and weighed 5.15 pounds to the dozen.

HOSIERY.

The cotton hosiery market is controlled by the Germans. The cheap colored socks in the Chinese shops retail from as low as 7½ cents a pair up to 25 cents. There is an increasing market for hosiery. Formerly both men and women pattered around in slippers held on by the toes and wore no hosiery, but shoes, and consequently hose are now being worn in increasing quantities. There is also a good market for the higher grades. The following shows present invoice prices and methods of invoice, being from a November shipment from Chemnitz:

CASE COTTON HOSIERY.

Net weight.							
With packing.	Without packing.						
			Case No. 2077. Gross weight, 100 kilograms, 95 by 66 by 69 c. m.				*Kilos.*
				Empty case			31.000
				Oilcloth			.390
				Parchment paper			.380
				Waste paper			.470
Kilos.	*Kilos.*	*Dozen.*		9.9½.10.10½.11		*Price.*	*Price, including charges.*
12.84	7.24	20	Men's white lisle lace ½ hose	2.4.5.6.3½		$1.43	$1.57	$31.40
28.33	17.13	40	Men's black lisle lace ½ hose	4.6.11.12.7½		1.43	1.57	62.80
16.40	9.54	24½	Men's white mercerized lisle ½ hose	2.4.6.3½		2.00	2.14	52.43
9.75	5.25	15	Men's black mercerized lisle ½ hose	4.5½.10.5½		2.00	2.14	32.10
67.32	39.16	99½						178.73
			Less 4 per cent discount					7.15
								171.58
			Less 2 per cent discount					3.43
			Actual net price paid by purchaser					168.15
			Consular fee					2.50
			Part of inland freight paid by consignees					4.38
			Gross sum of invoice					175.03

cluded in the charges are case, $1.67; 199 boxes, at 4½ cents, $8.96, and labor and packing mate- *$3.58; making a total of* $14.21.

Besides showing present invoice prices, this is a good sample of a German invoice. The figures were in marks, which have been changed to American currency for convenience in following, but otherwise the invoice is as made out by the exporter. It will be noticed that the Germans are particular in giving net and gross weights, size of box, weight of box, of oilcloth, of paper, extra charges, etc., in detail. The customs appraiser and the importer can ascertain every point about such a shipment at a glance. Very rarely is such an invoice received from the United States. Most German and other foreign socks have a seam down the back, while the better American grades do not, and this point is one that, according to a merchant in Manila, will, with the better quality of the American, make them increasingly popular on this market.

Bleached flax canvas comes in 24-inch widths and invoices at 18 to 21 cents a yard.

YARN AND THREAD.

The yarn and thread imported into the Philippines is increasing—being $641,164, $779,910, $907,519, and $1,092,563 for the years 1903, 1904, 1905, and 1906, respectively. The yarn and the thread are classed together, so it is impossible to distinguish between them, but the yarn undoubtedly forms the bulk of the trade. Over half of this comes from Great Britain, with Japan next, and then Belgium, Switzerland, Italy, Germany, Spain, India, and China, with smaller quantities from other countries, the United States being about at the bottom of the list. The greater portion of the yarn is shipped in 400-pound bales, containing 40 bundles of 10 pounds each. The finer yarns and fancy yarns are shipped in bales and boxes of various weights. A good deal of this yarn is dyed. Some is mock-twist yarn, made by running two rovings, one or both being colored, into one on the spinning frame; some is printed, usually in imitation of twisted yarn; while other yarn is mercerized or finished in some special manner. A good proportion of it is used for the stripe work in the native hand-loom woven-fiber cloths, so it is usually colored or fancy yarn; 60s in December, in 183-pound bales, were selling at 27¾ cents a pound.

There is ordinarily a fair profit, occasionally a very large profit, in the yarn business here. It is a question whether it would be attractive to an American export firm, owing to the great variety of the yarns used, necessitating shipments in each order of a few cases each of several different kinds. As a rule there is no big demand for any one number, being mostly assorted lots. This kind of business has never appealed to American firms, who prefer a wholesale business of selling several hundred-bale lots, but if there is a profit in it such prejudice must and will be overcome.

A New York house, kept in close touch with the market requirements by a Manila connection, which would cater to this market, could do a very profitable business here in yarn. The United States can not hope to control in this line, but on certain yarns, at times, would make a good profit, and if the natives were impressed with the fact that American cotton yarns were superior to the low-grade Indian and Japanese cotton yarns, American spinners could get part of the trade that goes to those countries, even at higher prices.

SAMPLE INVOICE CASE.

A good deal of the cotton goods imported into Manila comes in assorted lots, a few cases of one cloth, a few of another, etc. In a great many instances only a few bolts of each are shipped, and the English and Germans, unlike the Americans, will cheerfully fill any size order down to one case, and then arrange that one case as desired. A one-case invoice that I came across was packed and invoiced as follows:

SAMPLE INVOICE OF COTTON GOODS IMPORTED INTO MANILA.

[£1=$4.86; 1 s.=24 cents; 1 d.=2 cents.]

Description.	Net weight.	Net with paper, etc.	Width.	Pieces.	Yards.	Price per yard.	Total price.
	Kilos.	*Kilos.*	*Inches.*			*d.*	*£ s. d.*
White cotton fancies	17.60	18.69	27	10	395	6¾	10 5 9
Colored cotton grenadines	14.06	14.51	27	6	269	8¼	9 16 2
Printed cotton fancy cloths	45.81	48.08	27	26	1,105	4⅝	19 17 1
Printed cotton pongees	21.32	22.00	30	10	438	4¼	7 10 7
Gray cotton prints	29.48	29.91	31-32	7	371¼	4¼	6 7 8
Printed cotton furnitures (prints)	93.89	93.89	29-30	14	829	3¾	13 2 8
Making up and packing							2 2 8
Bank commission, etc							10 5
Total for case	222.25	227.02					69 13 0

NATIVE WEAVING.

Considerable hand-loom weaving is carried on in the country districts of the Philippines, and some really fine work is done. The annual imports of yarn are valued at $750,000 to $1,000,000, in addition to that made by the cotton mill at Manila and by hand spinning. The greater amount of the weaving is not with cotton, however, but with the fiber of various plants and trees, such as hemp, pineapple, palm, etc. There are many of these weaves, but the most noted are piñn, jusi, and Sinamay. Samples of these have been forwarded to the Bureau of Manufactures. All of these cloths are narrow woven, from 16 to 24 inches, and are used mostly by the women for mestizas or shirt waists in place of the Swiss muslin. These native goods [illegible]n in the gray or with stripe effect. The stripes are made [illegible]ted yanrs or silk usually.

A sample of jusi forwarded is 17½ inches wide, 20 yards long, 72 warp and 96 filling threads per inch, and retails at 30 cents gold a yard. It is made with narrow silk stripes down the warp. Some jusi sells as high as 75 cents a yard. Two samples of piña are forwarded, one very coarse, 19¾ inches, 40 by 28, retailing at 10 cents a yard, and another of medium grade, 19¾ inches, 84 by 72, retailing at 16 cents a yard. This is made from pineapple fiber, and some very fine grades of muslin, running as fine as the best Persian lawns, are made of this material. Some of it looks like silk.

Sinamay is woven from the hemp fiber. A medium coarse grade that is forwarded has stripes made of red and black printed yarns; the cloth is 18 inches, 40 by 52 construction, and retails for 25 cents a yard. A very large amount of hemp fiber is used locally in the manufacture of this cloth. The fiber for this purpose is specially prepared, the leaf stems from the center of the stalk are selected, and the fiber drawn several times under the stripping knife, which gives a fine, soft, white product. For the finer grades of textiles it is then placed in a wooden bowl and beaten with a mallet until the required fineness and elasticity are obtained. This process gives a fiber that is almost like silk, and the hand-loom woven cloth made therefrom is very fine.

The banana and other fibers used in the manufacture of the celebrated piña and jusi and other cloths are produced in substantially the same way. Some of the woven effects are very artistic. It may be noted also that embroidery of a very high order of merit is made in the Philippines..

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REPORT ON TRADE CONDITIONS IN ASIATIC TURKEY

By

CHARLES M. PEPPER

Special Agent of the Department of Commerce and Labor

DECEMBER 9, 1907

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1907

DEPARTMENT OF COMMERCE AND LABOR,
OFFICE OF THE SECRETARY,
Washington, December 5, 1907.

SIR: I have the honor to transmit herewith report of Special Agent Charles M. Pepper on trade conditions in Asiatic Turkey, in compliance with the act making appropriations for the legislative, executive, and judicial expenses of the Government for the fiscal year ended June 30, 1907, approved June 22, 1906, which directs that results of investigations by special agents to inquire into trade conditions abroad shall be communicated to Congress.

Respectfully.

OSCAR S. STRAUS,
Secretary.

The PRESIDENT OF THE SENATE.

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LETTER OF SUBMITTAL.

WASHINGTON, *May 1, 1907.*

SIR: I have the honor to submit herewith a report on Trade Conditions in Asiatic Turkey, the result of investigations made under instructions from the Secretary of Commerce and Labor.

So little is known in the United States regarding this section of the world, and the commercial needs of the 17,000,000 consumers who inhabit the provinces of Turkey in Asia, that it has seemed desirable to present some general information as well as specific data concerning the requirements and the opportunities of this market. The influence of railroad construction in bringing new areas under cultivation, and thereby providing sales for agricultural machinery and other manufactures, as well as for general merchandise, is to be taken into account, and a description is therefore given of the present systems and the railways under construction. Of equal importance are the trade opportunities which are afforded by the introduction of electricity. The installations that recently have been made and the additional ones that are assured, form one of the most significant chapters in the opening of old countries to new ideas, both industrial and commercial.

A summary of the transportation routes through the Mediterranean to the Levant and beyond shows that in the facilities for reaching this market Turkey in Asia is to be considered as the Near East, and suggestions are made how these facilities may be utilized by shippers.

With a proper comprehension of the fact that Asiatic Turkey is not a distant market, I venture to hope that American manufacturers will take advantage of the encouragement it now offers so that within a few years something in the nature of a real balance of trade may be established instead of the present lack of equilibrium, with the United States selling only $500,000 and buying $6,000,000 to $7,000,000 of products.

Respectfully,

CHARLES M. PEPPER,
Special Agent of the Department of Commerce and Labor.

To Hon. OSCAR S. STRAUS,
Secretary of Commerce and Labor.

TRADE CONDITIONS IN ASIATIC TURKEY.

INTRODUCTION.

Asiatic Turkey, geographically understood, comprises 700,000 square miles of territory, with a population approximating 17,000,000. Its shipping frontage is on the eastern Mediterranean coast from Alexandria in Egypt to Constantinople and on the southern shore of the Black Sea, which, for navigation and trade, may be considered a prolongation of the Mediterranean. The Red Sea and the Persian Gulf may also be regarded as sea front, since Turkey has an admitted dominion over the strip of Arabian territory along the Red Sea from the Suez Canal to Aden, and also over the portion of Arabia extending along the Persian Gulf to the Euphrates and the Tigris, including the important ports of Busra, or Basoorah, and Bagdad.

Asia Minor, with an area of 193,000 square miles and a population of 9,000,000, is the largest of the political divisions. Armenia and Kurdistan have a population of 2,500,000 in an area of 72,000 square miles. Syria, which includes Palestine, covers 115,000 square miles and has approximately 3,000,000 inhabitants. Arabia proper claims 1,000,000 inhabitants in a geographical extent of 170,000 square miles. The full authority of Turkey over this area and over these 1,000,000 inhabitants, many of them wild Bedouin tribes, is disputed. Mesopotamia is sometimes called the interior province because it has no sea front except as the Tigris and the Euphrates may be considered as such. It is also described as the Hinterland when reached through Syria or Asia Minor. Its area is 143,000 square miles and its population 1,400,000.

Commercially Asiatic Turkey, with its 17,000,000 people, does not cut a large figure in the world's trade, yet its markets are large enough to be considered a prize by the various European nations, and the probability of these markets growing till much larger proportions are reached gives zest to the international rivalry for the extension of influence in the Turkish Empire. While the statistical returns are not fully trustworthy, an average through a series of years seems to show that the annual foreign trade of the

Asiatic provinces of Turkey is approximately $110,000,000, of which about 60 per cent is imports and 40 per cent exports.

Syria and Asia Minor are the leading provinces, much of the trade for the other regions passing through them to Mesopotamia and even to Bagdad by the caravan routes. These provinces are similar in their products and their purchases, as well as in their commercial and industrial possibilities, and geographical information concerning the chief ports and inland cities is therefore desirable before considering in detail the import trade and the classes of articles of foreign production which are most in demand.

SYRIA.

BEIRUT AND OTHER TRADING CENTERS.

In Syria, with the exception of Beirut, the large cities, which are the chief trading centers, are away from the seacoast, though not situated very far in the interior. Jerusalem, 50 miles back from the landing at Yafa (Jaffa), has 60,000 permanent inhabitants, whose numbers are swelled very largely by pilgrims during various seasons of the year, and these may be said to form part of the population of consumers. The largest city is Damascus, with an estimated population of 250,000, situated 95 miles from the seaport of Beirut. Aleppo, farther north, has a population of 150,000 and is about 90 miles from the seacoast at Alexandretta. Both Damascus and Aleppo are to be considered not only with regard to their own inhabitants, but in relation to the vast interior of Mesopotamia and the regions of the Euphrates and the Tigris. Both cities are the starting points of caravans to Bagdad.

Beirut, with 125,000 inhabitants, is the chief port and is the most centrally located, though up to this time it has not commanded the largest share of the shipping. It has the only improved harbor on the Syrian coast, with a large breakwater, which is being extended, and its strategic advantages for imports and exports are expected to enable it to take and keep the lead over the other ports. The railway lines place it in direct connection with Aleppo and Damascus. The communication with Aleppo, which was established in 1906, is of decided advantage. The foreign trade of Beirut in recent years has ranged from $12,000,000 to $13,000,000, in the ratio of $5,000,000 exports to $7,000,000 or $8,000,000 imports.

Between Beirut and Alexandria in Egypt are the small ports of Yafa (Jaffa) and Haifa. Yafa, which is the gateway to Jerusalem, has no harbor and furnishes few commercial facilities. It has a large passenger traffic of pilgrims and tourists and, notwithstanding the lack of facilities, has a considerable quantity of freight, the bulk of which is carried by the railway to Jerusalem. Its volume of exports and imports amounts to $3,500,000 annually.

Haifa,.or Caiffa, as it is sometimes written, is a prospective rival of Damascus, for it is the real starting point of the Hedjaz Railway, and is expected to become the entrepôt for the bulk of the trade which may be developed by the building of this road through the desert to Medina and Mecca. It is likely to draw the pilgrim travelers from various parts of the Moslem world who heretofore have congregated at Damascus to begin their journey. The harbor facilities are not extensive, and the stone breakwater undertaken from time to time by the Turkish authorities, makes slow progress. Several European private companies are seeking harbor concessions at Haifa, and it is possible, though not certain, that one of them will succeed, in which case the work will proceed more rapidly and stimulus will be given to shipping. Tyre and Saida (ancient Sidon) are small places below Beirut, which are served by coasting vessels. Much of the traffic of Tripoli, the port to the north, is now diverted to Beirut by means of railway lines.

Alexandretta, at the head of the gulf of the same name, has an excellent deep-water harbor, with many natural advantages for commerce. The shipping at the present time ranges from $18,000,000 to $19,000,000 annually, the tonnage being 70,000 to 80,000. The bulk of this is freight to Aleppo, but the future of this trade is uncertain because of the lack of a railway line to Aleppo. Alexandretta is also in danger of suffering some diversion of its Asia Minor trade because that territory is now reached by the short railway leading from Mersina to Adana.

Mersina, also on the Gulf of Alexandretta, has a foreign trade of $9,000,000, chiefly exports, and is a port of call for the vessels of the Egyptian and Black Sea lines.

RAILWAYS—THE ROAD TO MECCA.

The commercial routes of Syria, both in their present opportunities and in their prospective developments, can be comprehended from a brief summary of the railway lines, present and prospective. At the beginning of 1907 about 1,000 miles were in operation. The line from Yafa to Jerusalem is 54 miles in length and serves for the freight and the passenger traffic entering Palestine through Yafa. While no extensions or branches of this line are contemplated, there is a probability of increased traffic through the slow, but gradual, taking up of land by small colonies, following the example of the very successful German settlements which are already established in the Holy Land. The most important of the Syrian railways is the Hedjaz Line. This begins at Haifa, but Damascus also may be considered as a starting point, since the lines from Haifa and Damascus join at Deera Junction. 105 miles from Haifa and 75 miles from Damascus.

The line from the port of Haifa to Deera, which passes along the Sea of Galilee, was built under the direction of German engineers,

and is a fine example of substantial construction. American rails were largely used. The bridges and tunnels, of which there are many, are very solid. The grades are steep and are surmounted by elliptical curves and loops. The line traverses a rugged agricultural district, thinly settled with Bedouin tent villages, until it reaches the plateau, where there are fine grazing and farming lands. From Deera Junction the main trunk extends through the desert and ultimately is to reach Mecca. The surveyed route from Damascus to Mecca is approximately 1,800 kilometers, or 1,100 miles. In March of the present year the rails had been laid to a point 500 miles from Damascus, leaving 600 miles to be constructed. During the pilgrimage in the fall of 1906 pilgrims were able to travel by rail to Alakhzar Station, 463 miles. The line is expected to reach Medina within two years and Mecca within five years, but definite information on these matters is not easily obtained, since the construction work is entirely in the hands of the Turkish officials, and outside of a few foreign engineers none but Mohammedan laborers are employed.

This railroad is built partly with funds supplied by the Turkish Government and partly by the voluntary contributions of Mohammedans in all parts of the world. Primarily meant to furnish modern transportation facilities for the pilgrims, who heretofore have traveled the caravan routes, it also has military value to the Turkish authorities in enabling troops to be transported to support the Sultan's authority over the semiindependent tribes in the district known as the Yemen. While much of the territory traversed is desert and offers no encouragement to cultivation, nevertheless the facilities for reaching this little-known region are likely to result both in increased exports and imports. Already the commercial prospects are seen to widen as each new section of the railroad is opened for traffic and the trade is not limited to supplies for the pilgrims. Beirut, Damascus, and Haifa all look for a continuous growth in the interchange of imported merchandise and natural products. Railway shops are located at Haifa, Damascus, and Deera, and a small one also at Ma'an, the most important station beyond Deera.

BRANCH LINES PROJECTED.

After the main trunk line of the Hedjaz Railway is completed, perhaps sooner, spurs or branches will be built. The first of these is likely to be from Jeddah on the Red Sea to Medina, since at this port access would be afforded the Moslem pilgrims who come from India and other parts of the Orient and are usually landed there. There are no formidable engineering difficulties in crossing the strip of desert between the coast at Jeddah and Medina.

From the Damascus and Haifa junction at Deera or from Ma'an a

spur to Akaba on the Gulf of Suez is also a probability, since this would be a natural commercial route. It would run by Mount Sinai. Political objections on the part of Great Britain because a railroad to Akaba would give Turkey strategic command of Egypt may delay the consummation of this project.

It is the declared purpose of the Turkish Government to keep the Hedjaz Railway entirely in its own control, not only owning but also operating it. Nevertheless several propositions have been made by European companies to take over the line from Haifa to Deera, and o complete the breakwater and other harbor works which would give Haifa much prestige as a commercial port.

BEIRUT-DAMASCUS SYSTEM.

The Beirut-Damascus system of railways consists of several lines controlled by a French company and connects those cities with Hama, Aleppo, and other points. The main stem is a narrow-gauge rack-and-pinion line over the Lebanon and anti-Lebanon mountain ranges, the distance from Beirut to Damascus being 95 miles. This narrow-gauge railway serves as a better basis for passengers than for merchandise, freight still being carried by bullock carts and mule trains. The line from Rayak, halfway between Beirut and Damascus, to Aleppo, which is about 160 miles in length, is of standard gauge, as are the Damascus-Hama branch and the other spurs. In order to control the valuable traffic to and from Aleppo it is proposed by the French company to build a standard-gauge line as far as Rayak, tunneling the mountains and thus avoiding the steep gradients of the present cog system, and also the expensive cargo transfer at Rayak. Surveys have been made for this purpose but no time has been fixed for carrying out the project.

Of the projected railways in Syria in ordinary circumstances the most promising one would be that from Alexandretta to Aleppo, replacing the present expensive transport by camel caravans and carts. There is a large export of licorice root and lumber and imports of cotton fabrics and coal through Alexandretta, and the tributary region between it and Aleppo has notable commercial opportunities, but the French company opposes any concession for such a line, since the traffic between Beirut and Aleppo which it expects to handle naturally would be diverted to the shorter route. In consequence of this opposition not much encouragement is given to the interests which at different times have considered the advisability of building the Aleppo-Alexandretta Railroad, although the estimated cost was not more than $5,000,000. A suggestion has been made that if American capitalists would take hold of the enterprise some of the existing difficulties would disappear.

ASIA MINOR.

SMYRNA AND OTHER PORTS.

Asia Minor, in area, coast line, population, and possibilities, is considerably in the lead over Syria, though its trade naturally intermingles with that of the latter country. The chief cities are on the coast. The inhabitants are mainly to be found along the shore line of the Mediterranean, the Black Sea strip for various causes being thinly populated. Smyrna is both the largest city and the leading port, although Constantinople, being just across the Bosphorus, in European Turkey, may also be considered as an entrepôt for the trade of Asia Minor. Smyrna has a population vaguely estimated at between 300,000 and 400,000. It commands not only the commerce of the mainland, on which it is situated, but also of many of the islands in the Grecian Archipelago. Its railway lines extend into the interior and give it control of the trade of practically all the territory that is developed. What Marseille is to the western Mediterranean Smyrna is to the eastern Mediterranean. It has extensive harbor facilities, including a splendid quay and piers, and its shipping is more than double that of any port in Asiatic Turkey. The foreign trade approximates $40,000,000 annually, the exports usually exceeding the imports by $9,000,000 to $10,000,000.

On the Black Sea Trebizond is the chief entrepôt. The imports vary from $6,000,000 to $7,000,000 and the exports from $2,000,000 to $2,500,000. More than one-half the imports, however, are goods in transit for Persia. Harput, in the interior, is to some degree the measure of the trade of Armenia, but its commerce is not equal to that of Trebizond.

RAILWAYS—IMPORTANCE OF BAGDAD LINE.

The railway lines in operation in Asia Minor do not exceed 1,500 miles. The most important are those radiating from Smyrna and the road from Haidar Pasha, which is known as the Anatolian, though it is in reality a section of the Bagdad Railway. The Smyrna-Aidin line, comprising 320 miles of the main stem and branches, is owned and operated by an English company. This company has been authorized to make an extension of 65 miles from Dinair, which later will reach Sparta and will open up a rich agricultural territory. The line from Smyrna to Cassaba, which is controlled by a French company, passes through a fairly populous and productive region.

The railway from Mersina to Adana is 60 miles in length. It is now owned by the German company which has the concession for the Bagdad railway. In its future possibilities this Bagdad Railway is the most important railway enterprise in Asiatic Turkey. It is commonly

known as the Anatolian Company. The concession procured by the German capitalists in 1900 was for a through line from Koniah, the terminus of the Anatolian line from Haidar Pasha, to Bagdad, with branches to the Persian Gulf. Though the validity of the concession is not questioned, political rivalries stand in the way of the Bagdad and Persian Gulf sections of this line being completed for many years, and efforts from time to time are made to secure a modification of the German control by an international agreement which would enable Great Britain, Russia, and France to protect their interests and share with Germany in the enterprise. A through railroad from Constantinople to the Persian Gulf would be a competitor of the Suez Canal for the trade of India.

There are many engineering difficulties in crossing the Taurus Mountains, and much of the region is declared to be unproductive, so that this part of the project is not an inviting one to capitalists, unless backed by the Turkish and their own governments. However, the construction of these sections of the railroad is not one of immediate concern, though when they are built and a line extends from Constantinople to the Persian Gulf it will be one of the most important railways in the world.

Of present consequence to trade and the internal development of Asia Minor is the actual prolongation of the Anatolian Railway along the Bagdad route. From Koniah it has been prolonged to Eregli and Bulgurlu, 500 miles distant from Constantinople, and further extensions are now in progress. The prolongation along the surveyed route is north of Aleppo, but a branch undoubtedly will be run to that point and the first links be formed for providing a railway inlet and outlet to Mesopotamia and the upper Euphrates Valley. Connection is made with Smyrna at the junction known as Kara Hisarri, so that already the beginning of a network of railways may be said to exist in Asia Minor, and headway is being made in opening up the undeveloped interior, which has both mineral and agricultural possibilities.

PROVISION FOR THE TRAFFIC OF THE CENTRAL REGION.

The central region, it is assumed, will be served by the Bagdad Railway, and extensive shipping facilities have been provided at Haidar Pasha, where elevators with electric cranes and all the modern improvements have been erected. The bulk of the business so far at Haidar Pasha consists in handling the grain, which is loaded into vessels that pass through the Dardenelles for the ports of Great Britain and the Continent. The import trade through Haidar Pasha up to this time has been light, but it is assumed that there will be a considerable commerce in agricultural machinery, mining machinery, and other heavy freight, as well as in cottons and textiles. Little

freight comes overland from the Continent to Constantinople for transshipment across the Bosphorus to Haidar Pasha and the interior of Asia Minor. The manufacturers of Germany and the other countries appear to find it cheaper to send their goods over their own railway lines to their own ports for shipment by vessels plying between those ports and Constantinople.

TURKISH RAILWAY POLICY.

GOVERNMENT AID—RAILS PURCHASED IN AMERICA.

In addition to the ordinary concessions, the Turkish Government sometimes gives a guaranty of so much per kilometer for the construction and operation of new railways by private companies. Several of the existing lines enjoy this concession. It is one reliance for the ultimate completion of the Bagdad Railway. In Asiatic Turkey, as in other countries, the significance of railroad building does not consist merely in the quantity of material to be bought for the construction of the given lines. It is rather in the enlargement of the existing markets and the opening of new ones. This is especially true of the lines in Asia Minor with the agricultural and the possible mineral development that may follow.

No discrimination was shown by the Turkish Government in its purchases of material for the Hedjaz line, the orders for rails and rolling stock being placed in various countries. A purchase of 20,000 tons of steel rails was made from a Pennsylvania steel company, and other orders would have been given if the activity at home had not rendered the American manufacturers indifferent to foreign business. These rails were shipped from Sparrows Point, Md., to Haifa, and the fulfilling of this contract demonstrated that the mills located at tide water in the United States can deliver rails to points so far distant as Asiatic Turkey in competition with the European mills, the difference in ocean freights not being appreciable.

The Belgian mills have supplied the larger portion of the steel rails both on the Turkish Government railways and on the lines built by the private companies. In the construction of the railroad to Aleppo the French company bought 40,000 tons of material in Belgium. The Turkish Government also bought Belgian rails and material for the Hedjaz line from Damascus. Locomotives and other railway materials appear to have been bought impartially in Germany and Great Britain. On the rack and pinion road between Beirut and Damascus Swiss engines are used. The English company which is extending its line from Smyrna to Aidin in placing its contracts for the 70-pound rails to be used on this line indicated a willingness to divide its orders between England and the United

States. In both Syria and Asia Minor European firms have obtained the bridge work, American manufacturers showing no disposition to compete.

ELECTRICAL DEVELOPMENT.

SLOW PROGRESS—LIBERALITY IN ASIATIC PROVINCES.

Collateral to the market for iron and steel products as they may be needed for railways is the prospect of electrical equipment both for traction and lighting, and also for various electrical appliances such as fans and possibly telephone apparatus. The situation in the Ottoman Empire in regard to electricity is too well known to need review. The leading American companies refused to submit to the wearying wait and the intrigues and quarrels over concessions at Constantinople. They preferred to leave the field to their European connections and rivals. Some smaller electrical interests of the United States did enter into the competition but did not persist. The idea of American electrical manufacturers has been that when the German and other European companies, which had been waiting for fifteen years, got their concessions and entered on the contracts for Constantinople and elsewhere in European Turkey they would enter the field, but not till then. Now that a variety of concessions have been granted for Constantinople it is yet to be seen whether this plan will prove successful. It is worth knowing that at last the Turkish Empire seems to be within the dawn of the era of electricity. More liberality has been shown in the Asiatic provinces than in European Turkey, but there is as yet very little electrical development. In Jerusalem the only electric light plant is a small one in the French hospice or pilgrim rest house, which was established without the knowledge of the Turkish authorities, but which has been allowed to remain.

Damascus is the pioneer city to be provided with a complete system of trolley traction and electric illumination. Electric lights were installed and the first trolley cars were run in February of the present year. The company is Belgian, and it was given a profitable municipal contract for lighting Damascus. Power is obtained from the Barada River.

TERMS OF BEIRUT FRANCHISE IN ILLUSTRATION.

The franchises for electrical enterprises generally are given only to Turkish subjects, but with a full understanding that they may be turned over to foreign companies. So little is known about the conditions and the terms of these concessions that I give the substance of the one granted to the company which is to light the city

of Beirut by electricity. The concession is for ninety-nine years with the reservation that after thirty years the Government shall have the right to repurchase on payment of an annual sum equal to the average net earnings of the system for the previous five years. If the privilege of repurchase is exercised the Government guarantees the payment of the annuity during the remainder of the concession, and the valuation of the installation and the material is to be made in accordance with stipulations which are minutely set forth, including the conditions under which the Government shall take control. The concessionaire is required to form an Ottoman joint stock company under the Turkish laws. The company is to pay the Government 12 per cent of its net receipts after payment of interest on its stock, bonds, and capital, and also after the payment of operating expenses. The company is required within twelve months after the granting of the concession to submit its plans for the approval of the minister of posts and telegraphs, and to begin work within two years from the date of the concession, terminating it within one year from the time the plans are approved. The works are to be under the joint control of the ministers of commerce and public works and of posts and telegraphs. The company is granted the free importation of material. Its real estate, funds and revenues, rolling and fixed stock, workshops, etc., are to be free from taxation. Its tariff of charges must be approved by the Government and a reduction of 20 per cent is to be made on mosques, schools, civil and military buildings, hospitals, and streets.

The capital of the company is fixed at 6,000,000 francs, or approximately $1,200,000. The president and one-third of the officers and administrators are to be Turkish subjects. Disputes as to the provisions of the concession, the contracts, etc., are to be referred to the Turkish tribunals. The company is required to make quarterly reports of its receipts to the minister of commerce and public works. In a separate series of stipulations the technical details regarding the plans and the installation of the plant, its operation and repairs, and the relations of the company to the municipality are set forth. A provision, which has much significance, is that in case a telephone line is authorized the preference for this franchise shall be given to the electric-lighting company. This provision is inserted in nearly all the concessions granted for electric traction and lighting.

HOSTILITY TO TELEPHONES—WATER POWER.

At the present time there are in the whole Ottoman Empire—Asiatic and European—possibly a dozen private telephone lines, but no public ones. The policy of the Government has been steadily and consistently hostile to the introduction of this invention, but it is

generally assumed that this hostility is likely to give way at any time and the introduction of telephones be permitted, in which case the construction of lines throughout the Empire will be very rapid and a valuable market will be opened for electrical apparatus. Because of the belief that the introduction of telephones can not much longer be delayed all the companies which are providing for electricity seek to have the telephone rights reserved for themselves.

The abundance of water power, which goes to waste in different parts of Asiatic Turkey, is one incentive to the use of electricity, and it is possible that some manufacturing enterprise may be developed along with lighting and traction plants. At Damascus the power of the Barada River is much more than sufficient for the trolley and electric lighting plants. In the Aleppo region there is also abundanc of power, and the waterfalls along the Haifa Railway are attracting the attention of engineers. Some of the smaller municipalities are also likely to follow the example of Damascus and Beirut and provide trolleys and electric lighting.

AGRICULTURAL MACHINERY.

MODERN EQUIPMENT NOT GENERALLY USED—PLOWS AN EXCEPTION.

The use of modern farm machinery in the settled districts of Syria and Asia Minor is yet far from general. European colonists employ it and gradually their success is making an impression on the natives. The German agriculturalists at Yafa and Haifa and the Jewish colony near Haifa are all well provided. At Yafa a good market exists for American agricultural machinery and it is supplied by local dealers. The line of least resistance seems to be in the introduction of harvesters, plows, and the simplest farm tools. American thrashers have not been successful. The experiment with these in Syria a few years ago promised well, but was on somewhat too large a scale, and the experimenters were a little too far ahead of their time. Similarly a large importer of agricultural machinery at Smyrna, after losing money, gave up the attempt. Preference is shown for the very heavy and solid English thrashers. It is claimed that the American machines, made as they are for the moister grain of the United States, are not adaptable for thrashing the dry straw which is characteristic of the grain in Syria and Asia Minor, where the bruiser is so necessary in order to get the best results from the tall straw and chaff. But the comparatively small number of Europeans engaged in agriculture on a large scale, and the indifference of the native farmers, along with their inability to handle complicated machinery, are the chief causes of the limited demand for thrashers.

American plows have a fairly widely distributed sale. This busi-

ness is not a new one. One of the largest importers in Smyrna supplies not only Syria and Asia Minor, but also Macedonia and Egypt, with a well-known plow of Indiana manufacture. His system has been to create agencies which sell at the same prices that are charged in Smyrna. These agencies are kept fully supplied with the different repair parts which may be needed, and they are impressed with the importance of supplying the peasants with these parts, so that the plow is not discarded or put out of use when an accident occurs. Instead, the aim is to provide the farmers with a constant demonstration of the best means of utilizing it. This firm also furnishes printed information in the Turkish and Greek languages, which are those most in use by the peasants.

CULTIVATORS, WINDMILLS, PUMPS, ETC., USED TO SOME EXTENT.

Cultivators of American manufacture have an occasional sale, but the best market next to that for plows is of harvesters of the different American makes. Mowers and reapers from Illinois and New York have the market, so far as one may be said to exist. Cornshellers have been imported experimentally, but it has not been possible to create a market for them. Some harrows also have been sold. Windmills, mostly from Freeport and Batavia, Ill., are to be seen in various places, generally along the coast. A drawback to their general use is the system of land ownership. The peasant cultivator who should introduce a windmill would not own it, since he is only a tenant and the title would be vested in the landowner, the latter is not sufficiently interested to provide for the improvement, and generally refuses to allow the cultivators a rebate in the rent for fixed improvements. The expense of lubricating the windmills is also a drawback, but perhaps the greatest obstacle is the ignorance of the peasant cultivator and the indifference of the landlord.

The ordinary pumps of American manufacture are in common use, but of late years the sales have not been extensive. This is particularly true in the neighborhood of the cities which have installed municipal waterworks. Irrigating pumps are little known, because Asiatic Turkey yet knows little of irrigation.

FARMERS MUST BE TAUGHT TO USE MACHINERY.

The American manufacturers of agricultural machinery who have had the best success are those who have regularly provided means of demonstration. Without this demonstration the Syrian or Turkish peasant is entirely helpless in handling a modern farm implement. Some of the American manufacturers also have failed to realize that the plow, which is so well adapted to soft prairie soil, is not fitted for the stony soil of Palestine. Model farms appear to be the best means

of demonstration. Patience also is essential. The Anatolian Railway, in an effort to educate the peasants of Asia Minor in the use of modern plows, supplied a large number of them on trial, but not taking sufficient pains with the demonstration of how to use them the experiment was a failure and the peasants went back to their primitive instruments. The Turkish Government agricultural school at Constantinople formed an excellent collection of improved plows for the special benefit of the cultivators, who were invited to visit the grounds and learn something of the new system of agriculture. But in the actual work on the Government farm they found the old style of plow which they themselves used also employed for the work that was done, and it is doubtful whether they were benefited by the mere exhibition of strange implements whose uses were not explained. A cheap German plow, which was sold in Bulgaria for 70 francs, or $14, was introduced into Asia Minor, but did not find a good market. Much harm was done legitimate farm tools from the United States by a firm in Constantinople which while professing to deal in American agricultural implements sold cheap German farm tools as of such manufacture. The firm did not continue long in business, but in the meantime the harm had been done to the reputation of the American implements.

LACK OF GOOD ROADS PREVENTS SALE OF MODERN VEHICLES.

Farm wagons do not meet encouragement at this period when good roads are so few and facilities of transportation so primitive. The camel or donkey and the rude bullock cart are considered sufficient for all needs. In the towns and cities, however, buggies and carriages are in use. The first American carriage was introduced into Palestine by a tourist guide. Many of them are now found in Yafa and Jerusalem, but the market has its limitations. In Damascus some rough four-wheeled vehicles of native manufacture are employed, though most of the carriages are of European manufacture. Smyrna also shows a preference for the European vehicles. Bicycles and motor cycles are in limited demand, but motor cars are rarely seen. The lack of good roads is the explanation.

Among other manufactures the suggestion has been made that a market might be secured for oil engines for flour mills, screens for sifting barley, and wool-cleaning machines. A good demand has been developed both in Syria and in Asia Minor for oil cooking stoves, several of the American foundries having local agencies and competing for this trade. It is one that is susceptible of further development. The oil heating stoves have not been so popular, English and French makes apparently having secured the preference.

IRON AND STEEL PRODUCTS.

OPPORTUNITY FOR AMERICAN HARDWARE AND FURNITURE.

A merchant in Beirut, who imported half a dozen Cincinnati safes, found an excellent market and developed what promises to be a permanent trade. A similar experiment in Smyrna was not so successful, cheap German and Austrian safes having the field as against the better American article. Yet with persistence the sale of American safes may be increased.

It is the prevalent opinion of dealers and importers that American hardware can find a much larger market, if it is pushed. Most of the ironmongery of ordinary grade comes from Belgium, Germany, and Austria, though Great Britain has a fair market for the best quality. In Asia Minor a growing demand has been shown for round and square bar iron, hoop iron, pig iron, wrought-iron nails, hammers, hatchets, shovels, saws, and locks. Galvanized sheet and bar iron is in steady demand. Steel wire and wire nails are also in good demand and this trade already is partly supplied by the United States. There is a fair demand for iron tubes for water and gas pipes.

A Beirut importer furnishes the following list of iron and steel products which he thinks cold be exported advantageously from the United States to Syria: Paris point nails and tacks, rivet bolts and round bolts with flat heads, bar tin and tin plate, tweezers and nippers, vises, screw nails, bridle plates, lantern sockets, carriage and saddle fixtures, and household ironware and cutlery.

One of the best openings afforded is for American furniture, both household and office. Warerooms showing these articles exclusively would attract attention. The Austrian bentwood and the fine German furniture are too dear for general consumption. Roll-top desks have a market wherever an effort is made to supply them. Extension tables also have met with favor. American chairs retailing from $24 to $30 a dozen have been sold, although this trade has not been pressed. Some sample folding beds have been received with favor.

MINING MACHINERY WILL BE NEEDED.

The mineral resources of Asia Minor are yet so little exploited that the prospective outlook for mining machinery can not be very well estimated. It is significant, however, that a large number of companies and individuals have been seeking concessions, though their jealousies and intrigues have retarded the development of this industry. Within a year a less contentious disposition has been shown by the prospecting companies and some modifications have been secured in the Turkish mining regulations. These modifications promise to bring about an active era of prospecting. The substance of the Turkish mining laws is that the right to work a

mine must be conferred by imperial decree. It is valid for ninety-nine years in the case of ores running in veins and from forty to ninety-nine years in the case of chrome, emery, and other ores which are found in masses. A royalty of 1 to 5 per cent ad valorem is charged on all metals extracted by means of shafts and galleries, and of 10 to 20 per cent on the products of mines whose mineral lies in masses. The concessionaires of the Bagdad Railway have the exclusive right to develop land and minerals in a strip 40 miles wide on each side of the railway, and also have valuable rights for exploiting the petroleum fields. When the railway enterprise itself makes further progress this mineral concession, it is expected, will be exploited very thoroughly, but there are also many deposits in other parts of Asia Minor, and an era of mineral development is not dependent on the one railway enterprise. The minerals include chrome, zinc, copper, manganese, borax, coal, bitumen, emery, antimony, mercury, and gold and silver, so that the machinery which will be in demand when the mineral development of Asiatic Turkey begins in earnest can be judged.

TEXTILE IMPORTS.

GREAT BRITAIN'S STRONG LEAD IN COTTONS.

The trade of Asiatic Turkey in textiles almost reduces itself to cottons, and until recently the trade in cottons has confined itself to Manchester. Now other European countries are competing, Italy foremost among them. The United States is hardly in the business. Manchester supplies from 70 to 75 per cent of all the cottons imported into Asiatic Turkey. At Smyrna the imports amount to $5,000,000 annually, and at Beirut and Alexandretta they are about the same.

The nature of the Syrian imports through Beirut may be learned from the following summary of the yearly importations furnished me by one of the leading import houses: 700,000 to 800,000 pieces, 24 to 36 yards, unbleached, different widths, 27 to 36 inches, and different qualities; 120,000 to 150,000 pieces, 39 yards, bleached, 32 to 36 inches widths, different qualities; 220,000 to 250,000 prints, 30 to 40 yards, different widths and qualities; 300,000 to 350,000 packages of white cotton threads, 10 pounds each, Nos. 16 to 24.

Another importer supplied the following list of English imitations of American cabots, which are in the greatest demand:

Pattern.	Width.	Length.
	Inches.	*Yards.*
MK extra	30-31	60-70
MK h I	26 40	24
MK h II	27-30	24
MK h IV	30-50	Various.
RF h	27 37	24
WG h	30-31	60-70
RF h III	30-31	60-70

Many other qualities in popular demand are much lighter and of different widths. The finish of these patterns is especially fine and is one source of their popularity as against Americans. Some cotton blankets are imported from the United States. Cotton yarns of all numbers and all qualities are also sold extensively in the Beirut market.

In Damascus, which is a great fitting out place for the interior trade, Manchester has almost a complete monopoly. In the famous native bazaar there is a special bazaar for these English goods. From 80 to 82 per cent of all the cotton textiles imported are from England. The chief articles are madapolams, unbleached calicoes, prints, muslins, shirtings, longcloths, and T-cloths. Of these, unbleached calicoes amount to $500,000 annually and prints to $400,000. England also has the advantage in cotton yarns, though the competition of Italy is felt. The coarse Indian yarns which at one time had considerable popularity have been almost entirely displaced by the Italian yarns, including inferior white, superior bleached, and twisted bleached. In colored Nos. 16 to 30, Great Britain has a substantial monopoly, as also in unbleached and colored of various numbers. Italian sales of double-twisted bleached are increasing, though Manchester still holds 65 to 70 per cent of that trade. Germany has made some headway in red and crimson yarns owing to the greater durability of the German dyes. The United States sends no yarns to Damascus.

SMYRNA IMPORTS A SMALLER PROPORTION FROM ENGLAND.

Manchester does not have so large a share in the cotton textiles which Smyrna imports for its own consumption and for distribution to Asia Minor and the islands of the Ægean Archipelago, but the total some years reaches $2,500,000. After Manchester comes Italy with $750,000 to $1,000,000, and then the United States with $100,000 to $150,000, chiefly of standard gray and brown sheetings, ducks, and blue, black, and gray drills. Italian cottonades and English denims have crowded the American textiles. England supplies most of the muslins, shirtings, and print goods, mulls, calicoes, white goods (bleached and unbleached), drills, and velvets. Italy's best market is for unbleached goods, drills, and cottonades. Both Germany and Austria supply some heavy cotton cloth and shawls.

At Harput, through which the trade of Armenia is supplied, American "A" cabots still retain a fair market, but "AA" cabots are divided between Germany and Italy. England supplies the bulk of the calicoes and prints, though both Italy and Germany now have a fair share of this market. Ginghams, of which 80,000 to 90,000 yards are imported, come from all Europe, while canton flannels are divided between Germany, France, and Italy.

AMERICAN GOODS IMITATED TO THEIR DISADVANTAGE.

The similarity of the imports both for Syria and Asia Minor is noticeable, and the same condition is met at all the ports and distributing centers. This is the success with which American cottons have been imitated and put on the market at a lower price than the manufacturers in the United States have been able to offer. It might be more correct to say that the cabots have been counterfeited rather than imitated. These counterfeits are found in the bazaars of Constantinople as well as of Smyrna and Beirut, and are so designed as to avoid trade-mark infringement, though they are unscrupulously pushed as "Americans."

The problem seems to be for the American mills to hold the market which formerly was theirs and then to look for new ones. I was informed in Constantinople that the manufacturers' agents who control the output of the cabots had been giving concessions to buyers, but that they were yet unable to shade their prices so as to meet fully the competition of the cheaper and inferior grades. So many consular reports have been made on this subject, and samples of cottons forwarded to the Bureau of Manufactures, that there is little to add to the suggestions made by the consuls. The Southern mills, which secured a foothold two years ago, do not seem to have pushed their advantage or to have guarded themselves sufficiently against their competitors, who at once began to imitate the American article that was achieving popularity, especially the sheetings and drills. Manchester, through its agencies and branch houses, is in such close touch with the Levant that it is enabled to take immediate advantage of any change in the popular taste and also of the enterprise of competitors. Nevertheless the fact that the Italian mills have invaded this market, equally at the expense of Manchester and the United States, seems to show that it can not be held as a permanent monopoly by any country. The most practical suggestion I have heard, and the one which has been impressed on me by the importers and mercantile houses, is that the American mills should establish their own agencies and maintain permanent representatives who will at all times be in touch with the manufacturers and with the importers.

GERMANY AHEAD IN SUPPLYING WOOLEN GOODS.

Of textiles other than cottons the bulk of trade is divided between England and Germany, the latter having the larger share of the woolen goods. Germany has a good market for shawls and clothing of the common grade, the finer cloths coming from England. Most of the woolen yarns are also supplied by England and the fine dry goods by France. The chief article of head-gear, where the turban is not used, is the fez or tarbouche. The use of the tarbouche is

universal. The market is very largely supplied by Austria. French competition through the Algerian colony and British manufacturers' efforts have not made notable inroads on the Austrian trade in tarbouches. The market is so valuable that these countries are constantly striving to secure a share in it.

RUBBER AND LEATHER GOODS.

UNITED STATES CONTROLS TRADE IN RUBBERS.

Though the United States has no part in supplying head-gear to the Turkish Empire, it does furnish a share of the footwear. It is more than ten years since American goloshes, or rubbers, were introduced, and they now command the market. There is a large sale for them in Jerusalem, Beirut, Damascus, Smyrna, and Armenia. Their popularity illustrates how a market may be created. As an example, 50 pairs of overshoes were imported in 1899 into Armenia from England and Russia. In 1905 1,000 pairs were imported, of which 900 were from the United States. Beirut shows a similar growth. In Jerusalem at one time the demand was limited to the tourists. Now the native inhabitants are the largest consumers. The competition in some places is with the Russian overshoes; in others with the French or British article, but in every place it has been developed that an American golosh of good quality can be offered at a more reasonable price than the European make. The quality is not quite equal to the rubber overshoe which is sold in the United States, but with a slight improvement in this respect, without a corresponding advance in price, the American rubber will hold the field. The trade has been fostered very carefully by manufacturers in the United States who were quick to appreciate the possibilities of the demand after it was created.

OPENING FOR AMERICAN BOOTS AND SHOES.

That American boots and shoes have not thus far made progress equal to that of American rubbers is due to the failure systematically to cultivate the market. European shoes are sold, but the Turkish people find the same objection to them that is found by others. They lack durability, and the lasts from which they are made have little adaptability to the Turkish foot. Such American shoes as have been introduced have found favor, though to secure their general use a larger variety will be necessary. Up to this time the styles and shapes offered have been very limited, and the Syrian or Turkish buyer who found something suitable did so by chance. The best way to develop this trade seems to be the establishment of American shoe stores with a full line of styles and shapes, as has been done very successfully in the cities of the Continent. The retail prices which

the dealers obtain are 40 to 50 per cent higher than in the United States. Since the duty is only 8 per cent ad valorem, and in no event will be raised beyond 11 per cent, the margin of profit is a large one and should be sufficient inducement for the dealers.

Manufacturers who complain of the high duties which European countries are imposing on American boots and shoes, and who see a prospective loss of market on that account, would do well to turn their attention to Turkey, where a market awaits them after the initial expense is incurred. They need not fear that native industries can be established to compete with them when once they have popularized the American shoe. An ambitious attempt of this kind was made in Syria with machinery imported from the United States. It failed, as other attempts to manufacture American shoes in foreign countries have failed, because of the inability to specialize, as is done in the United States. The enterprise afterwards was revived, but on a much narrower basis and only with a view to supplying a limited local demand. Something has been done by American makers of black glazed kids, of which a large variety are offered, but this trade is centered in Constantinople and has not been pushed in Asiatic Turkey. American saddlery has found a sale by the dealers who were hardy enough to risk its importation. The fancy saddlery suits the Bedouin, whose whole wealth is in his horse and its accouterments.

PROVISIONS.

INDIRECT IMPORTATIONS FROM THE UNITED STATES.

Turkish Government regulations and prohibitions interfere with the sale of certain lines of provisions. It is claimed that American hams, which could not get direct importation from the United States, have been admitted when consigned through Germany. The importation of crude cotton-seed oil is also prohibited. Nevertheless French exporters are allowed to ship sesame from the port of Marseille, though sesame can be used for adulteration the same as cotton-seed oil. Since the Mohammedan population will not use lard or other hog products, the cotton-seed oil would seem to be especially suitable for their needs.[a]

The market for oleomargarine varies widely from time to time, but no month passes that a considerable quantity is not received from the United States. Formerly for the Syrian market the oleo was shipped to Constantinople and then transshipped to Beirut, but for the last year or two the Beirut shipments have been direct. Smyrna also imports direct. Starch is imported in considerable quantities.

[a] Owing to the diplomatic representations of the United States the restriction on cotton-seed oil has been removed.

Foreign soaps have to meet so many exacting conditions of chemical analysis before they are admitted that American dealers have never made a serious effort to secure this trade. The importations are of the finer grades, and these are obtained in England, France, Italy, and Germany.

Malt liquors are imported from Europe, yet American beer from Milwaukee has a secure market in Syria, where the importations are increasing. Light beers are the favorite. Some beer has also been shipped from the United States to Smyrna, but an established market there does not yet exist. American whiskies are in fair demand.

Chicago tinned meats, canned salmon, and similar articles are to be had in some places, but about two-thirds of this trade is held by Great Britain. American breakfast foods have obtained some vogue, especially in Palestine, where relishes and various dry groceries are to be had. American flour is imported into Syria and Smyrna intermittently in competition with Russian and Roumanian flour. Consul-General Ozmun, at Constantinople, recently has taken up the question of American flour for the Turkish Empire, and manufacturers who are looking to that market can obtain information by communicating with him. Beet sugar is imported almost entirely from Austria-Hungary, which supplies two-thirds of what is consumed. It is shipped by way of Trieste.

EXPORTS AND IMPORTS.

WHAT IS SENT ABROAD AND WHERE IT IS SENT.

The export products which the Asiatic provinces of Turkey send abroad to pay for their importations include barley, wheat, licorice root, leaf tobacco, olive oil, coffee, wine, fruits and nuts, wool, hides, goat and sheep skins, opium, emery, cocoons, manufactured silks, silk threads and waste silk, carpets and rugs, and some raw cotton. A small quantity of raw cotton is shipped from Syria, though most of what is produced is utilized in local manufactures. This is true of the Hama region, which is tributary to Damascus. Cotton is also being raised in the valley of Jericho, although the total product is not large. Cocoons and waste silk are shipped to France and Italy, while some silk stuffs with cotton mixture find a market in Egypt. A native wine which is produced in the vicinity of Haifa is exported to Egypt, Great Britain, and Germany. Oranges are exported from Yafa chiefly to Liverpool, although an occasional choice cargo finds its way to the United States. The Yafa shipments in ordinary years amount to 600,000 boxes, but in some years they exceed 700,000. Figs, nuts, and raisins are exported chiefly from Smyrna.

Great Britain is the leading buyer of the agricultural crops, taking

the bulk of the barley and beans and dividing the wheat with Marseille and Antwerp, although the latter port also receives some of the barley. Great Britain supplies Cardiff coal and patent fuel, some provisions, miscellaneous manufactures, and, above everything else, cotton fabrics. Germany and Austria take very few Asiatic products in return for the varied articles which they sell to Syria and Asia Minor. Belgium, which has so profitable an interest in the market for iron and steel products, is also a relatively small buyer. France has a heavy balance of trade against her, but this is because of the large importations of cocoons and semi-raw material for her factories.

WHAT THE UNITED STATES BUYS.

The United States, which is a good customer for Turkish products, is at the bottom of the list in regard to sending back goods instead of cash to pay for her purchases. She is a heavy buyer of licorice root, taking the entire shipments, while wool, hides, and skins have their price fixed by the demand in the United States. Smyrna opium and leaf tobacco are also important items, while Smyrna figs are a source of profitable supply. Old rubbers in some years are an important item. They are collected from all parts of the Empire. The high price which rubber has commanded during recent years has created a regular business in gathering old and worn-out overshoes, which are shipped to New York to be melted and used again in the manufacture of new goloshes.

Much of the licorice root is shipped through the Syrian port of Alexandretta, but it is also obtained from the region tributary to the Black Sea and from the districts which lie back of Bagdad. Emery stone is shipped from Smyrna, and bitumen or asphalt of high grade is exported from Syria to the United States, where it is used in tanning and finishing leather.

The values of the articles entering into the commerce of the United States with Asiatic Turkey appear from the following figures based on the statistics of the Bureau of Statistics of the Department of Commerce and Labor for the fiscal years 1905 and 1906:

IMPORTS INTO THE UNITED STATES FROM ASIATIC TURKEY.

Article.	1905.	1906.	Article.	1905.	1906.
Licorice root	$1,404,574	$1,049,779	Ores:		
Opium	653,391	598,989	Chromate of iron	$22,844	$90,570
Coffee (Arabia)	137,355	183,447	Emery	98,426	179,272
Cotton manufactures	28,830	29,306	Silk manufactures	6,686	3,385
Fruits and nuts:			Leaf tobacco	277,964	414,148
Dates	185,340	312,885	Raw wool	1,789,572	1,605,470
Figs	534,212	631,201	Carpets and carpeting	111,975	145,904
Raisins	67,888	241,245	Miscellaneous articles	231,937	388,732
All other	108,712	95,519			
Hides and skins	358,144	501,687	Total	6,021,876	6,485,749
Metals	15,025	14,120			

EXPORTS FROM THE UNITED STATES TO ASIATIC TURKEY.

Article.	1905.	1906.	Article.	1905.	1906.
Agricultural implements..	$9,381	$10,890	Distilled spirits.....	$23,454	$17,613
Cotton manufactures.....	106,731	231,667	Wood and manufactures of wood.....	39,032	6,738
Iron and steel manufactures.....	104,412	32,753	All other articles	71,531	223,749
Malt liquors	3,006	4,728			
Mineral oils.....	3,165	117,440	Total	360,772	645,578

The year 1906 made a little better showing for the United States, and the exports may be said to average $500,000 annually.

INCREASING TRADE WITH AMERICA.

The trade relations of the United States with Asiatic Turkey as evolved in a ten-year period may be seen from the following summary:

IMPORTS OF UNITED STATES FROM AND EXPORTS TO ASIATIC TURKEY.

Imports.		Exports.	
1896.	1906.	1896.	1906.
$3,103,000	$6,485,741	$150,000	$645,578

From this it appears that in the ten years Asiatic Turkey has a trifle more than doubled her exports to the United States and the United States has increased her exports to Asiatic Turkey fourfold. Considerable variation, however, was shown in the period from 1895 to 1897, and in one year the exports only reached $48,000. While the percentage of gain is much larger for the exports from the United States, nevertheless the total is still so small that it is scarcely appreciable, while the doubling of the imports from Asiatic Turkey, the figures being in the millions, is far more significant. This seems to afford the basis for increased efforts on the part of American manufacturers to secure something like a balance of trade or an equal interchange of products.

It is a coincidence that the commerce between Turkey in Europe and the United States is almost as great, according to the statistics, as the commerce with the Asiatic provinces. For the calendar year 1906 the American imports from European Turkey were $6,961,000 and the exports $875,000. But since Constantinople, through which the bulk of the trade with European Turkey is done, serves also as a distributing center for Asia Minor and Turkey, both in exports and imports, it is a fair assumption that the American trade with the Asiatic provinces is materially larger than with the European provinces of the Ottoman Empire.

CUSTOMS REQUIREMENTS AND TARIFF RATES.

The customs requirements regarding the importation of merchandise are somewhat complicated and are apt to be vexatious to American shippers until they learn how to observe the regulations. This they can only do by following the instructions received from the commission agents and the brokers at the various ports. Remonstrances are constantly made at the indifference shown by the port and customs officials in the method of opening and handling packages, but these remonstrances may safely be left to the brokers and commission agents, who by long experience know the degree of vigor with which it is necessary to give voice to their protests. It should, however, be remembered by shippers in packing their goods that much merchandise is transported by caravans and that such articles require special care. The package which is generally recommended is one that does not exceed 145 pounds in weight.

The Turkish tariff is a uniform ad valorem one. The schedule in force is 8 per cent on all articles except tobacco, but conditional consent of the European nations has been given to the increase to 11 per cent proposed by the Ottoman Government. At the time this report is written the advanced rate has not been put into force. The news of its becoming operative will be recorded in the Daily Consular and Trade Reports.

It should be said that the numerous and complicated tonnage and other port dues have the effect of increasing the actual customs impost, but the brokers and commission agents who handle the goods are so thoroughly familiar with these requirements that they are able to fix the average almost as accurately as if the dues and the incidental charges were included in the ad valorem tariff. Where a dispute arises regarding the values fixed by the shippers and by the Turkish customs appraisers the shippers or their consignees have the right to turn in the disputed goods to the Government at their own valuation for public sale.

A uniform export tax of 1 per cent is laid on all articles shipped from the Turkish Empire to foreign countries, except mineral products, which pay a higher rate. Commercial travelers with samples pay the full ad valorem rates on entering their goods, but on the reexportation of the samples within six months the duty paid is returned. The regulations on this point are minute, and it is desirable for commercial travelers to inform themselves concerning the requirements, and especially to see that a duplicate list of their samples is made, so that it can be used in case of reexportation by a different port than that through which imported.

METHODS OF INCREASING TRADE.

WHAT COMMERCIAL TRAVELERS MAY ACCOMPLISH—THE CREDIT SYSTEM.

American "drummers" are rare in Asiatic Turkey. When they do come they should be supplied with a full line of samples which they can put to practical demonstration. As in every part of the Orient, demonstration is of prime importance. In the language of one of the consuls, the goods must be held right in the faces of the persons to be secured as customers. Two men came to Jerusalem one year with aluminum stereoscopic holders, and it was thought they might sell twenty. They went around for a few days, held them in front of people, explained how the stereoscopes were to be used, sold 300, and established a permanent business. They were equally successful in Smyrna. Standard articles which are not novelties find a market in the same manner.

This method of selling by exhibiting the sample and demonstrating its use has been followed with much success by Austrian and German drummers. Makers of agricultural machinery are about the only ones in the United States who have recognized the necessity of demonstration and they have not always persisted. American manufacturers are also slow to furnish their local representatives with samples, although it is impossible to sell their goods by means of catalogues and circulars only. An illustration of this unwillingness was given me in Damascus, where an enterprising young merchant, whose financial standing was excellent and was easily ascertained, sought to open up a promising trade in several lines. Requests to the American firms for samples were ignored. Disgusted, he made application to English firms handling the same lines and the samples were promptly forwarded. That was one instance in which American trade was lost through too great caution.

The subject of commercial travelers is concisely covered in a recent report of Consul Harris, of Smyrna, and I quote his pertinent suggestions, which are equally applicable to other parts of Asiatic Turkey:

> Eight hundred commercial travelers come to Smyrna every year. With the exception of about 75 from England they all come from continental Europe. None comes from America. The aid of the commercial traveler has become such an all-powerful factor in the development of trade in this part of the world that it is a matter of much comment on the part of those familiar with business conditions that American manufacturers do not send their representatives to Smyrna. Thus far their American interests have been either in the hands of resident agents or they have depended upon catalogues to bring them an occasional and uncertain order. These methods of securing markets are generally unsatisfactory. Agents are not always fully informed or empowered to act, and orders taken from catalogues often cause delay and unnecessary correspondence. American manufacturers who wish to secure a foothold in

this country must adopt aggressive methods, and send out men who know their particular branch thoroughly.

Commercial travelers need no license in Turkey. All that is necessary to go from one port to another is that they be provided with a police traveling permit, which costs 60 cents, and can be obtained from the local police authorities through the American consulates. Under no circumstances should former Ottoman subjects ever be sent as commercial travelers. In the absence of a naturalization treaty with Turkey, naturalized American citizens of Ottoman origin will be subject to no end of trouble and run great risk in the end of being expelled from the country. In fact, the Government prohibits their return unless the change in nationality took place prior to 1869 or was done in virtue of a special permission granted by the Sultan.

THE CREDIT QUESTION.

The question of credits in Asiatic Turkey, as in European Turkey, is a most difficult one. Notwithstanding that the Germans have secured customers by giving long time, and perhaps by not scrutinizing too closely the standing of their agents, the system is not to be recommended, though the average result must show a profit or the Germans would not continue the system. It is one of the most troublesome problems with which American firms have had to deal. Local agents very capable as to pushing goods have often turned out to be untrustworthy and financially unsound. While established firms of high standing naturally object to being classed with unreliable petty traders and while they object to paying before goods are received, yet most of them announce their willingness to meet drafts under the ordinary conditions; that is, they will pay the drafts drawn on London or on any of the banks of the Ottoman Empire. The Imperial Ottoman Bank, with headquarters in Constantinople, has branches in all parts of Asia Minor and Syria. It is under French control. The Credit Lyonnais of Paris also has branches in most of the ports and cities of Asia Minor and Syria. Germans are now establishing their own financial institutions, the Orient Bank being the leading one.

Since there are no mercantile rating agencies, the banks and the information which may be obtained indirectly through consular representatives are the only means of determining the financial standing of the importers who seek credits. It is well to have specific statements from the banks as to the one matter of financial soundness, since the oriental habit is sometimes indulged in and general recommendations made which, while correct enough, do not meet the specific requirements of exporters in the United States, some of whom have suffered losses through showing too great confidence in recommendations of this character. In every case explicit answers should be asked as to the financial standing of the would-be customer, and where the banks evade giving the explicit information the credits may be wisely refused.

FOREIGN NATIONALITIES.

IMPORTANCE OF CONSULAR COURTS—CONTROL OF FOREIGN TRADE.

The doctrine of extraterritoriality in Turkish territory is insisted on by the United States as well as by the European nations. This is of great importance, for, except in the event of controversies with Turkish subjects, all disputes are tried before the consular courts. Since the larger portion of the foreign business of Turkey is carried on by foreign houses—that is, English, French, Austrian, German, Greek, and Italian subjects—nearly all cases of commercial litigation come before these courts and the litigants are not subject to the uncertainty of the Turkish tribunals. The rule with the foreign business colony is to avoid disputes with Turkish subjects and to keep out of the Ottoman courts.

At Constantinople there is a union of foreign commercial concerns in which the United States is represented. While the membership is local, the objects sought to be attained by the union apply to the whole Turkish Empire. This body makes its representations to the treaty powers regarding the reforms which are desired and which in its opinion hamper the development of commerce with Turkey. If the ambassadors of the treaty powers are favorably impressed with the reforms proposed, they bring the subject to the attention of the Turkish Government and sometimes secure the modifications desired.

The nationalities represented in the Turkish Empire are varied, but it may be said that the foreign trade on its wholesale and jobbing side, and to a large degree in its retail features, is controlled by Europeans rather than by Turkish subjects. The English have large commercial interests which have been established for a century or more. They are very conservative, and have not expanded as might have been expected, but they are a fixed and definite factor in all that relates to the commerce of Turkey. The French have heavy investments in the railways and harbor works, but their import trade is larger than their export commerce with Turkey. The Austrians have certain lines of business to which they confine themselves. The Italians are very prominent and have the largest colonies, both at Constantinople and at Smyrna. The Greeks, however, are by far the most numerous nationality. They are extensively engaged in retail trade, are in shipping, and in a measure in the wholesale business. They are in close connection with the fruit trade of the United States. Of the Turkish subjects the Syrians are the most active and successful in commerce, and for that reason there is less of the European element in Beirut and other Syrian cities than in Asia Minor. The Armenians are located in Asia Minor, as well as in their own provinces.

GERMANS PREDOMINANT.

The Germans, politically and commercially, are now the dominant force in the Turkish Empire, though less so in the Asiatic provinces than in Constantinople and the rest of Turkey in Europe. They have secured the most valuable railway and other concessions, and are in control of the enterprises which give the greatest promise. The colonies in Syria are yet small ones, but so far as colonization may develop there it is generally conceded that it will be along German lines. Except in the case of religious communities, other nations have made little efforts at colonization in Palestine. Asia Minor, with much greater possibilities in the way of agriculture and mineral resources to be developed and with a larger area than Syria, is looked on as a future field for German colonization. The predominance of German influence causes antagonism on the part of other European powers, notably Great Britain and France, which act together in order to check it. A concession given to German subjects for a railway or an electrical enterprise is usually met with a protest on the part of the other powers or a demand for a similar franchise for their own subjects. Where the latter course is taken and the concession granted, as often happens, the result is good for Turkey, since it insures a certain measure of development. Yet it is unfortunate that the various European nations by their moves and countermoves in preventing concessions going to their rivals have retarded the development of the Asiatic provinces.

LANGUAGES IN COMMON USE.

From the description of the manifold nationalities the question of languages may be comprehended. While English is common, it is not so much a universal language of trade and transportation as in the more remote regions of the Orient. Nevertheless, all the leading commission and import houses are conversant with English, and correspondence may be carried on in it. For circulars, catalogues, and printed matter generally French is more useful, since the knowledge of it is very common. German also is widely spoken and read, as is Italian, but Greek is even more common, because of proximity and the very large number of Greeks who are settled in Smyrna and Constantinople. In Asia Minor the official language is Turkish, and that is the tongue of the great body of consumers, but in Syria, along the Red Sea and the Persian Gulf, Arabic is the medium and can be used in circulars and printed matter. An American firm which handles engineering and farm machinery and has its headquarters at Alexandria circulates a newspaper in Arabic, which answers for Syria as well as for Egypt. Many Syrians, however,

because of facilities resulting from the large emigration to the United States and on acccunt of a natural capacity for languages, speak English.

EDUCATIONAL OPPORTUNITIES.

One means of meeting the requirements of business men in the United States who are not familiar with the languages of the Orient is supplied by the educational institutions. The Syrian Protestant College at Beirut, better known as the American College, maintains a school of commerce as part of its curriculum, and special attention is paid to the commercial needs peculiar to that section of the Orient. English is the language in all the professional courses, and the students are required to be masters of it and of two other languages. The commercial relations of the Levant, the exports and imports of the different countries, their resources, and leading products are all studied on practical lines. Graduates of this college are to be found in Egypt, Arabia, and other parts of the Near East, and also in the United States. The special training given them secured employment for them in commercial houses which are engaged in the oriental trade, and American business firms can avail themselves of the services of these young men. Roberts College at Constantinople covers substantially the same ground, and its graduates are equipped with the knowledge of the languages of the Orient, commercial relations, and the other questions which enter into international commerce.

AMERICAN CONSULATES.

Consular representatives of the United States are located at most of the important points in Asiatic Turkey, and from them valuable information can be obtained regarding the development and the commercial opportunities in their districts. The list is as follows:

Arabia, consul at Bagdad, Basoorah, Aden (British); consular agent at Hodeidah.

Asia Minor, consul at Smyrna and Trebizond; consular agent at Mytilene and Samsoum.

Armenia, consul at Harput.

Syria, consul-general at Beirut; consul at Alexandretta and Jerusalem; consular agent at Aleppo, Mersina, Damascus, Haifa, Tripoli, and Yafa (Jaffa).

OCEAN TRANSPORTATION FACILITIES.

IMPROVEMENT OF HARBORS AND DOCKS.

Having shown the character of the foreign commerce of Asiatic Turkey both as to the export products and the articles of importation

most likely to be in demand, with information relating to the general requirements of the trade, I pass to another subject concerning which much ignorance appears to exist among manufacturers and shippers in the United States. This is the means of handling goods at the various ports and the more important matter of the facilities for transporting cargoes to those ports.

Harbor accommodations in the coast cities of Syria and Asia Minor, though not fully commensurate with the needs of commerce, are constantly being improved. They are usually controlled by private companies. This is the case at Beirut, where a French corporation has the monopoly and furnishes good accommodations, though complaints are frequent against the exactions to which commerce is subjected. A new breakwater is to be built at Beirut. The fine quay at Smyrna, 2 miles in length, is controlled also by a French company, as is the Constantinople water front. It is generally understood that the French Government, through the Bank of France, has an interest in these quays, and recently the Bank of England, which is presumed to stand for the British Government, has acquired some of the stock from the French owners. This is part of what may be called the European international policy of preventing any one nation from acquiring too great influence, commercial or political, in Turkey. The private corporations controlling the harbor works are authorized by the Turkish Government to levy dues on all goods landed in accordance with a schedule approved by the Government. As an example, the rates at Smyrna are 0.032 cent per 100 pounds on cotton goods; rubber shoes, 0.08 cent; and agricultural implements, 0.032 cent.

STEAMSHIP LINES TO THE LEVANT.

Routes and shipping facilities for the Levant and the other sections of Asiatic Turkey should be understood in connection with the whole trans-Atlantic service. The means of ocean transportation from the Atlantic coast have a general application, and the information concerning them is useful for those doing business with the adjacent countries of Europe and Africa which are not part of the Levant. The Black Sea, the Red Sea, and the Persian Gulf are water frontage for the Asiatic provinces of Turkey, and one transshipment is all that is usually required to deliver freight at any of the ports. The transportation companies endeavor to avoid more than one transshipment, while the importers at those ports seek as far as possible to have cargoes come direct. The lines which furnish transportation to the Levant and beyond are of two categories. One class transships from Hamburg, Antwerp, Hull, or Havre; the other and more advantageous class makes the cargo transfer at the Mediterranean ports of Barcelona, Marseille, Genoa, Naples, Trieste at the head of

the Adriatic, and sometimes at Piræus. Formerly shipments were made via Liverpool, but most of the English companies now have their own Mediterranean steamers from New York, though occasional transshipments of cargo from the Levant for the United States are made at Liverpool.

DIRECT SERVICE TO NEW YORK NEEDED.

Efforts to maintain a direct service between New York and the Levantine ports have been made in former years, and there is still a strong desire for such communication. The firm of Barber & Co. ran a line of steamers to Egypt, Syria, and Asia Minor during a period. They had a contract to carry a large order of steel rails to Beirut and Haifa, and when the rails were going forward they endeavored to obtain a general cargo for adjacent ports, but not much was offered. A direct service is in operation between Smyrna and New York at the present time, which may be considered experimental. This is the Argo Line, of Bremen. Exporters of licorice root and emery stone have a contract with this company under which they ship from 1,000 to 1,200 tons per steamer for New York, the time required being twenty-eight to thirty days. These firms also charter at some seasons a steamer of 3,000 tons, and occasionally a sailing vessel is used as a floating warehouse. The Hamburg-American Line, together with the German-Levant Line, formerly had this freight, and from January, 1902, to August, 1904, endeavored to maintain a monthly service from New York to the different Mediterranean and Black Sea ports, but gave it up for one reason because the return cargo from New York was not sufficient to make the traffic profitable. It is thought by some of the Smyrna shippers that a service six times a year, with perhaps two extra steamers in the fall season when shipments of dried fruits from Smyrna and the Greek ports are largest, could be maintained permanently. The leading exporters of emery and licorice root have a clause in their shipping contract authorizing its cancellation whenever an American line is established. It is believed that the shipments of carpets and rugs from Constantinople and Smyrna, which can be depended on at fixed seasons, would furnish a basis for a regular direct service. In December and January the shipments are heaviest, one firm sometimes consigning 1,000 bales in a single cargo. Hides and skins also form part of these cargoes.

STATUS OF RUSSIAN EXPERIMENTAL SHIPS—DIRECT LINE TO SYRIA.

In the fall of 1906 the Russian Steam Navigation and Trading Company, which is subsidized by the Russian Government, established an experimental service between Odessa and New York direct.

It was partly a passenger service, the emigrants being a profitable feature. The return cargo from New York comprised a fair quantity of general merchandise, one manifest including 400 boxes of starch, household hardware, clocks, and miscellaneous merchandise. The company made two sailings between Odessa and New York, touching at Piræus and Naples on the trip out and at Naples and Palermo on the home voyage. The trips were made at intervals of about two months. The steamer assigned to the service proved unsuitable, and the information given by the New York agent of the company is that its continuance depends somewhat on the ability of the company to secure proper steamships, since its own regular boats are already occupied with the regular trade. The company will announce its decision soon.

The Syrian ports are without direct service and a group of merchants of Beirut are very anxious to have one established. They are confident that if this can be done the trade with the United States will be materially increased. The present communications are confined to steamers carrying cargoes and passengers in transit. The Beirut merchants are sanguine that a company confining its voyages to and from Syria would find sufficient business, but they suggest that such a line touch either way at Genoa, Smyrna, and Constantinople as well. The exports from Syria to America now go via Genoa, Marseille, Hamburg, and Liverpool. They consist of wool, apricot paste in cases, asphalt, rugs, carpets, and provisions and wearing materials for the use of Syrians who have emigrated to the United States. About 5,000 bales of silk are sent to France and thence forwarded to America. The wool is transported almost entirely by way of Liverpool, where it is graded. The imports from the United States into Syria consist of hardware, agricultural machinery, butterine, India-rubber goods, cotton fabrics, malt liquors, and provisions.

IMMIGRATION AS A FACTOR IN INTERNATIONAL TRADE.

A strong inducement urged for a direct service is the constant movement of Syrians to and from the United States and also the Syrian immigration to South America by way of New York. The immigrants number 7,000 persons annually. Many come back for visits, and of late years this return passenger service has been notable. The emigration movement makes a market not only for Syrian products in the United States but also for American products in Syria. It may be said parenthetically that the same condition is observed at all the other Mediterranean ports, especially in Italy, and that those who go out as emigrants, when they return to their native countries, are prosperous enough to come back as third-class

passengers and thereafter travel in that category. The value of this movement of emigrant population in making known American products and manufactures, and thereby developing trade heretofore has received little attention, but it is unmistakable and should not be ignored. With reference to Syria it is to be considered as one of the most valuable factors in extending the markets.

The suggestion of the Beirut importers is that in view of the certainty of the passenger traffic growing and of the percentage of freight which can be relied upon, a direct service be established with the United States, possibly in the beginning not more than four times a year, though they are confident that later it would develop into a monthly service. But to render it of any value there must be fixed periods for the arrival and departure of the steamers. An intermittent service with no fixed periods of sailing and therefore no certainty when a cargo could be shipped or would arrive, would be no improvement over the present conditions. American shippers interested in this subject and desiring to be put in touch with the Beirut importers should communicate with Consul-General Ravndal.

DIRECT SHIPMENTS TO AND FROM SOUTHERN PORTS.

In a summary of transportation facilities the Atlantic ports should be regarded as including not only New York, Boston, and Philadelphia, but also Savannah, Charleston, Pensacola, New Orleans, Galveston, and the various points on the Gulf. Importers in the Mediterranean countries who are taking cotton and cotton-seed oil, cotton fabrics commonly known as "domestics," tobacco, resin, phosphates, sponges, pitch pine, and other products of the Southern States frequently have called attention to the benefits which would result if shipments were made directly to and from the southern ports. This is especially pertinent in view of the increased quantities of cotton which Italy and Austria are importing. There would be a distinct saving in the railway freights and a general expansion of trade. A direct immigration service from the Mediterranean ports, including the Levant and the Adriatic, is certain to grow out of the present industrial conditions, and this immigration, as has been noted, is one of the best means of developing commerce. With one exception the exports from the southern ports are far and away in excess of the imports, but there is room for growth in both directions. Galveston, for instance, had exports in the calendar year 1906 of $187,000,000 as against $5,000,000 imports; New Orleans, $168,000,000 to $45,000,000; Savannah, $59,000,000 as against $2,200,000; Pensacola, $20,000,000 to $500,000. Charleston alone shows an excess of imports over exports, the former amounting to $3,000,000 and the ter to $1,170,000.

Several of the steamship companies have undertaken to supply facilities for direct service to and from the southern ports and the Mediterranean, but they have not received marked encouragement from shippers of American products in the way of cargoes on which they could depend at fixed dates. This subject deserves more attention on the part of the South in the present active movement to distribute its raw products and its manufactures in foreign markets. With reference to direct shipment or transshipment it should be understood that freight can be laid down in the Levant within thirty days after departure from New York.

ROUTES FROM AMERICA—NO LINE UNDER THE AMERICAN FLAG.

The steamship lines which provide a passenger and freight service are summarized as follows:

Austro-Americana Steamship Company, of Trieste. The sailings of this company are from New York to Trieste and Fiume. They connect with the Austrian Lloyd, taking cargo for all of the ports comprised in the Levant, Black Sea, and Far East. Vessels are dispatched every ten days, and there is also a monthly service of cargo steamers from New York to Algeria, Malta, Sicily, and Adriatic ports. It is the intention shortly to provide a weekly instead of a trimonthly service between New York and Trieste. The time required for delivery of goods at the various Levant ports varies, but the voyage from New York to Trieste takes from fifteen to twenty days, according to the speed of the different steamers employed. Emigration from Austria-Hungary to the United States furnishes valuable passenger traffic. A passenger service is maintained between Trieste and Naples and New York, and the steamers touch at Naples both on the outward and the homeward voyage.

The Austro-Americana Company has a line from Savannah to the Mediterranean-Adriatic ports with transshipment at Trieste, and it undertakes to provide fortnightly sailings. The passage from Savannah to Trieste is via Barcelona and Genoa and consumes about thirty days. This company also takes cargoes from New Orleans and elsewhere on the Gulf and issues through bills of lading from Trieste to and from railway points in the United States reached from these ports. The service from New Orleans is intended to be a fortnightly one, and from Galveston, Pensacola, and Tampa monthly. Passenger traffic has been established on the New Orleans route, the vessels touching at Barcelona and Naples.

The Cyprien Fabre Company, of Marseille, has a trimonthly service between New York, Marseille, and Naples, with transshipment at the latter ports for Algeria and the Levant. The outward service is to Marseille and thence to Naples, from which sailing is made direct to New York. The time for express steamers is twelve days and for

ordinary steamers sixteen days. From Marseille there are fortnightly sailings to Alexandria, Beirut, and other Syrian ports, and weekly departures for Algiers.

The Cunard Company maintains a Mediterranean service with connections at Naples or Genoa, and also at Trieste and Fiume. The Adriatic service to and from Trieste and Fiume is the outgrowth of the emigration arrangement with the Hungarian Government. Sailings are fortnightly and through bills of lading are issued to the ports of the Levant. Transshipment at Naples or Genoa is by one or the other of the Italian lines, and at Trieste by the Austrian Lloyd. The Cunard steamers touch at Gibraltar.

The various Italian lines maintain a regular service between New York and Naples and Genoa, connecting with their own steamers for the ports of the Levant, the Black Sea, and the Red Sea. The time of transit from New York to Genoa or Naples, where the transshipment is made, is fifteen days, and seven days is reckoned in the worst of eventualities for transshipment in case close connections are not secured, though usually the time is not more than three days. The steady emigration movement to the United States, and the return passenger traffic, together with the tobacco and cotton cargoes, have given great impetus to the Italian steamship service. The companies are as follows:

Italian General Navigation Company, including the Florio and Rubattino lines. La Veloce, runs regular line of steamers direct to Naples, and on some routes these companies operate in combination. A southern service is maintained between New Orleans and Palermo.

Lloyd Italian Steamship Company, fast freight and passenger service between New York and Naples and Genoa, fortnightly sailings. The average passage to Naples is about thirteen days.

Lloyd Sabando, fortnightly service New York to Naples and Genoa. This is a new line, the first steamer having been scheduled for departure in April of the present year.

The Prince Line has inaugurated a service to Naples, Piræus, and Patras.

The White Star Line maintains a Mediterranean service from New York and Boston, with fortnightly departures from each port, alternating so that there is a weekly sailing for Naples and Genoa. The steamers touch at Gibraltar. The time of passage to the Italian ports is twelve to fourteen days. Cargo is transshipped at both places for various points in the Levant. The connecting lines of the White Star have frequent sailings and the approximate time of transit from Naples or Genoa is: Smyrna, four to eight days; Constantinople, six to ten days; Beirut, ten to fourteen days; Alexandria, four to six days.

The Compagnie Generale Transatlantique, better known as the French Line, which maintains a regular service between Havre and New York, has a working agreement with the Det Forenede Dampskibs Selskab, of Copenhagen, which runs steamers monthly between Havre and Constantinople. These Danish steamers touch at La Rochelle, Tunis, Piræus, Smyrna, Salonica, and Constantinople. The vessels take twenty-one days in making the trip. The Compagnie Generale Transatlantique issues through bills of lading at New York. The merchandise has to be packed in solid cases or bales, and the rates are charged either on the weight or the measurement. All charges must be prepaid at New York.

The Hamburg-American Line provides a regular fortnightly service between New York and Naples and Genoa, with transshipment by these steamers to the ports of the Levant as well as by the German Levant Line from Hamburg. Freight is transshipped by connecting lines from Genoa to all points in the Levant and the Black Sea. The southern service of the Hamburg-American Line is from Baltimore, Newport News and Norfolk, New Orleans, and Galveston to Hamburg, with transshipment at that port for freight to the Mediterranean.

The North German Lloyd has a weekly Mediterranean service from New York via Gibraltar to Naples and Genoa. Freight is transshipped to all the ports of the Levant, and a weekly service is operated between Naples and Alexandria. The sailings from Marseille and other ports of the western Mediterranean to Smyrna, Constantinople, and the Black Sea are fortnightly. The southern service of the North German Lloyd is from Baltimore, Savannah, and Galveston to Bremen, with transshipment at the latter port for the Mediterranean and the Levant.

The Wilson Line, of Hull, England, maintains a weekly service from New York to Hull, and a fortnightly service from Boston to Hull, the steamers of which connect with Wilson Line vessels bound for Alexandria, Egypt, every two weeks. A regular fortnightly service is provided by the Wilson Line from Hull to Constantinople and the Black Sea in connection with vessels from New York and Boston. During the spring this company at times loads from Philadelphia, Baltimore, or New Orleans to Odessa, touching at Constantinople and other ports. The principal cargo is agricultural machinery from the various western manufacturers.

SUGGESTIONS FOR SHIPPERS.

Shippers usually can obtain information from the New York agents of the different lines as to the routing of their freight after it is transshipped at the Mediterranean ports. This is sometimes desirable in

order to remedy complaints from the consignees in regard to delays or damage to goods. The most frequent cause of complaint from consignees in the Levant is the failure of the receiving line to bring the entire transshipment by the same vessel.

Though not much American freight is shipped by way of Marseille some merchandise occasionally finds its way to the Levant by this route. The Messageries Maritimes dispatches vessels from Marseille to Piræus, Smyrna, Constantinople, and the Black Sea ports and to Alexandria and Beirut and other Syrian ports. Another French company, with headquarters at Marseille, is the Paquet Line to Smyrna, Constantinople, and Black Sea ports. The British and the German lines to the Orient also utilize Marseille both outward and homeward.

The Italian companies, as has been explained, have their own lines from Naples and Genoa to the eastern Mediterranean in connection with the New York service, and they make the claim of the greatest promptness in reaching the largest number of ports of the Levant.

The Austrian Lloyd, with headquarters at Trieste, aims to dispatch an average of one vessel per day to meet the needs of the Far East and the Levant traffic. At least three vessels per week are relied on for the Levant and Mediterranean service, and the claim is made that freight for any of these ports will be transshipped in five days at the farthest. Both ordinary and accelerated service is provided, and these include the Trieste-Alexandria, Trieste-Constantinople, Trieste-Beirut, Constantinople-Odessa, Constantinople-Batoum, and Greek-Oriental lines. The Austrian Lloyd has a traffic arrangement with the Austro-Americana and the Cunard companies for American freight.

FACILITIES IN THE EASTERN MEDITERRANEAN AND BEYOND.

In the eastern Mediterranean several companies have a complete service from Alexandria to the Black Sea by way of the Syrian coast or the more direct route of Piræus and Smyrna. The Syrian coast lines touch at Yafa, Haifa, Beirut, Tripoli, Alexandretta, and Mersina, and then proceed, via Smyrna and Constantinople, to the Black Sea. This is the course taken by the Russian company and also by the Greek lines.

The Khedivial Line, an English company with headquarters in Egypt, has a weekly line from Alexandria along the Syrian coast to Alexandretta and back. This company also maintains a direct service from Alexandria to Constantinople, via Piræus and Smyrna.

The Roumanian Government mail line maintains a fast passenger service between its port of Constanza, in the Black Sea, and Alexandria.

With regard to the more remote sections of Asiatic Turkey it may be said that the service for the Red Sea and the Persian Gulf is supplied by the Austrian Lloyd, the Messageries Maritimes, to some *extent* by the English lines, and now by the Hamburg-American

Line, which in 1906 opened up a new service of cargo steamers from Hamburg. The outward-bound ports of call after leaving Hamburg are Antwerp, Marseille, Port Said, Suez, Port Sudan, Jibuti, Aden, Maskat, Bunder Abbas, Bushire, Busra, and smaller ports. American freight is transshipped either in Antwerp or Hamburg. Cargoes from the United States, however, are also forwarded by the route to Bombay or Karachi, India, transshipping at either of these points for the Persian Gulf.

From the summary of the transportation lines engaged in the Mediterranean service and beyond it will be seen that, while a strong demand exists for a direct American line which would avoid transshipment, there are existing facilities, and shippers have choice of various lines. Taking all the lines which run direct from the Atlantic to the Mediterranean ports it appears that from New York alone nine companies provide approximately twenty sailings monthly, if the regular passenger steamers are included. By cooperation of shippers with the lines running from Atlantic ports of the United States direct to those of the Mediterranean the time now consumed in the voyage for ports of the Levant and through the Suez Canal might be reduced and the facilities for transshipment expedited and otherwise improved.

COMPETITION FOR FREIGHT IS KEEN.

American exporters have the benefit of competition in charges. Freight rates for the Levant vary according to the cargo and the demand. From New York to Smyrna, for example, general merchandise can be shipped at rates ranging from $5 to $6 per ton, and some of the shippers by private arrangements secure better terms. Full printed schedules of rates and of classifications of articles, by groups, are supplied by all the steamship companies, but concessions from these printed rates are frequently obtained. They may be considered as the maximum charges. Freight rates per ton from New York to Alexandria are nominally $6; to Beirut, $7.50; Piræus, Smyrna, and Constantinople, $5.50, with 5 per cent added for primage in all cases. One company, which in April inaugurated a service to Naples and Piræus, was unable to procure cargo to Piræus for its first steamer, though it offered to take lubricating oil and provisions at $5 and 5 per cent primage per ton weight, and other cargo on the basis of $5 and 5 per cent per ton weight or measurement. Usually the companies quote the rates either weight or measurement.

Most of the American agents of the Mediterranean lines are authorized to make any rate that will obtain the business, the deduction being divided between the line running from New York to the Mediterranean ports and the one from those ports to Syria and Asia Minor. The German lines have an arrangement with the State rail-

ways, and also the private railway companies of Germany, by which through bills of lading are given and through rail and water shipments are made. Some of these lines are subsidized by the German Government and are more interested in carrying a cargo from Germany to the Levant than in bringing one away, so that the return voyage is often with partial ballast.

The statement can be unequivocally made that ocean freights are no bar to American competition with the European countries in the Levant. I have been assured by importers in Syria and Asia Minor that they can obtain as good a rate from New York or Boston as is given from Liverpool or Hamburg. Many American shippers are not aware of this fact, but they could verify it by inquiry among the New York agents of the various lines whenever they have freight to offer. Some of the lines also quote through rail and water freights from various interior points in the United States. Generally the prepayment of freight is required, so that the manufacturers and commission agents quote prices to the importers in the Levant on that basis, but there are established houses in Smyrna and other cities which have their own arrangements with the steamship companies, and to these quotations are made f. o. b. New York.

CONCLUSION.

A review of the transportation routes and the shipping facilities shows that Asiatic Turkey, while commonly considered as in the Orient, is the Near East as distinguished from the Far East. Its nearness to American ports through the Mediterranean is apparent, and that it will be drawn closer by increased facilities of ocean transportation may be accepted as settled. In the means of establishing markets for American products it also may be considered as becoming nearer and nearer to the United States.

Analysis of the products and resources of Asiatic Turkey demonstrates that though the imports and exports vary from year to year, roughly speaking, it may be said that it has $40,000,000 to $45,000,000 worth of products to sell and buys $60,000,000 to $65,000,000. That the bulk of the exports are raw products and of the imports manufactured articles will not escape attention. Nor does the prospective development of its internal resources change this probability.

The basic conditions governing the trade of Turkey in Asia are not dissimilar to the conditions in other parts of the world. There is the certainty of an increased agricultural area being placed under cultivation through the extension of railways, and the probability of a considerable exploitation of the almost untouched forests at a time when every nook of the globe is being sought out for timber. The outlook is encouraging for a notable development of mineral resources

hitherto absolutely untouched. The quickening of all industrial activities, which results from the application of electricity in its most modern and practical forms, is assured, and at a later period there is the prospect of the agricultural prosperity which comes from the application of the ancient principle of irrigation to the modern triumphs of irrigation engineering. It is this application that almost certainly one day will be seen in Mesopotamia, and will render the plains of the Tigris and Euphrates more productive than they were in the palmiest period of the Assyrian Empire.

The United States can secure its proportion of the increased trade which may be looked for in all the provinces of Asiatic Turkey, if advantage is taken of the present situation when there is a genuine demand for American products.

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REPORT ON TRADE CONDITIONS IN COLOMBIA

By

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Special Agent of the Department of Commerce and Labor

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LETTER OF SUBMITTAL.

BOGOTA, COLOMBIA, *October 30, 1907.*

SIR: In submitting the accompanying report, I beg leave to call attention to one or two leading points:

Colombia is our nearest South American neighbor. The growing intimacy of the relations of the United States with the southern continent, based on commercial and industrial interests in common, makes a full understanding of the trade conditions in Colombia desirable, because it is one of the Republics which up to this time has shown the least basis for mutual exchange of products in proportion to its great natural resources. The wealth of its soil, its forests, and its mines has not been distributed to the rest of the world, largely on account of the lack of transportation facilities. In these circumstances railways are of especial importance, and I have described the situation as regards them both in its bearing on the development of transportation and because of the prospective market for railway material. The classes of goods which are to be exchanged for Colombia's staple crops and for the output of its mines and forests include some of the natural products of the United States, but in a larger degree manufactured articles, particularly agricultural implements and other machinery. The measures taken by the Government for fomenting and increasing some comparatively new crops, such as cotton, and for encouraging the cultivation of wild crops, such as rubber, are also considered, since if successful they will enlarge the purchasing power of the country. I have given some space to describing the fiscal system, including both internal and external taxation, and the policy adopted for strengthening the public credit and remedying the present volume of depreciated paper currency. This financial rehabilitation goes hand in hand with the expected economic development.

The facts in regard to these and other subjects are stated with a view to giving conservative information. The growth of the foreign trade of Colombia and the increase of the proportion which the United States shall have in it are sober business propositions.

In conclusion, it is gratifying to state that some American manufacturers are already supplementing by their own agencies the official information which the Department of Commerce and Labor is able to supply.

Respectfully,

CHARLES M. PEPPER,
Special Agent of the Department of Commerce and Labor.

To Hon. OSCAR S. STRAUS,
Secretary of Commerce and Labor.

TRADE CONDITIONS IN COLOMBIA.

RESOURCES AND DEVELOPMENT.

The Republic of Colombia, in the years when the revolutions and civil wars were not distracting the country, had a foreign commerce of $30,000,000. That volume is being again attained under the present progressive administration, but beyond this $30,000,000 there are great possibilities, and these have a special interest for the American manufacturers who are seeking wider markets.

Its area is approximately 500,000 square miles, and the population, based on recent estimates, is 4,500,000, or 9 persons to the square mile. Assuming $30,000,000 as the normal trade, this would be less than $7 per capita. Small as this foreign commerce is, the United States has not the share which it should have in view of its geographical and other advantages. In the present circumstances the United States takes 50 per cent of the exports and supplies 25 per cent of the imports. The Caribbean Sea might be called the front door and the Pacific coast the side door of Colombia, both opening to the United States. European countries by various methods manage to discount these advantages.

ENCOURAGING FIELD FOR AMERICAN ENTERPRISE.

How the trade of the United States with its neighbor may be increased and a permanent and valuable market obtained can be understood from a knowledge of both the present commercial and industrial conditions and the prospective development of the great internal resources. The foreign purchases are dependent on fostering and increasing the export crops and other products. The purchases which will be made in the largest quantities are, first, those growing out of construction enterprises and the use of agricultural and other machinery; and, second, the ordinary needs of food and clothing. For the development that is looked forward to Colombia must have foreign capital, since her own means are not enough and the balance of trade in her favor is not heavy enough to furnish a sufficient surplus. The investment of this capital and a balance of trade in her favor for a period of years are the two economic requirements.

NATIVE PRODUCTS TO EXCHANGE FOR NEEDED COMMODITIES.

The productive resources are such as to encourage commerce with countries of the Temperate Zone. While some sections produce cereals sufficient for their inhabitants, there will always be a certain proportion of breadstuffs to be imported, and clothing will be a leading article to be obtained abroad. Iron and steel manufactures in all forms—railway material, farm tools, and mining machinery—are the most important items in the importations which will be necessary in carrying out the constructive policies of the present government. Colombia will buy what she needs for the consumption of her people by sales of coffee, rubber, tobacco, gold and silver ores and other minerals, timber, cattle and hides, fruits, and a variety of medicinal and other tropical products. Most of these articles are noncompetitive.

For the development of her natural wealth and the expansion of her foreign trade the essential element to Colombia is internal and external peace. This has been obtained under the administration of President Rafael Reyes. The good will of both the United States and Europe and the protection of foreign capital, which will insure adequate returns and encourage further investments, are part of his programme. Fiscal reforms and the restoration of the public credit are included in the measures for developing the internal resources by means of capital obtained from without. These measures I shall have occasion to discuss in detail, but preliminary to them is the subject of transportation.

THE TRANSPORTATION PROBLEM.

Ocean transportation may be covered very briefly, but when the coast cities of Colombia are reached the real difficulty begins, and it should be frankly recognized. The Caribbean ports are only 1,900 miles from New York and 1,400 miles from New Orleans, and passengers and cargoes can be landed in from seven to nine days at moderate cost. Bogota is only 700 miles from the coast, yet twelve to fourteen days are required to reach it by the quickest modes of travel. Freight is delivered in from two to six weeks, and the charges are from four to seven times the ocean rates. Other interior points pay proportionately to Bogota. Between the United States and Cartagena and Puerto Colombia (Savanilla), which is the entry port of Barranquilla, the steamer service is confined to German and English lines. The Atlas branch of the Hamburg-American Company has weekly sailings from New York via Jamaica. The return voyage is via Port Limon, Costa Rica, and Jamaica, with occasional intermediate stops at Colon. The time from New York to Puerto Colombia (Savanilla) is nine days. The steamers of the Atlas

Line usually lie at the wharf two days and then proceed to Cartagena, a few hours distant. The return voyage to New York is made in twelve to fourteen days. The Royal Mail Steam Packet Company, of England, has semimonthly sailings from New York via Colon and Jamaica and vice versa. The Leyland and Harrison Line, of Liverpool, has sailings three times a month to and from New Orleans via Colon and Kingston. From the port of Santa Marta the United Fruit Company maintains a freight service to New Orleans. The Atlas Line has a weekly sailing direct from Santa Marta to New York, which is reached in seven days, but the outward voyage touches Haitian and other way ports and takes a fortnight. The small port of Rio Hacha is served by coasting vessels.

EUROPEAN AND PACIFIC STEAMSHIP SERVICES.

The European service to Barranquilla and Cartagena is more extensive. The Hamburg-American Line, known locally as the "Black German," has three sailings a month; the Royal Mail, two; Compagnie Générale Transatlantique (French), two; Compagnia Italiana de Navigacione (Italian), one; Compania Transatlantico de Barcelona (Spanish), one. The latter touches only at Puerto Colombia. While European countries thus have the benefit of direct service, much freight is routed by way of New York, where the transshipments are made, freights being shaded so as to be as low as by the direct service.

On the Pacific side the steamship service is of the Pacific Steam Navigation and the Chilean lines from Panama, the smaller steamers of these companies making stops at Buenaventura and Tumaco on their way to Guayaquil. At Panama they receive freight from the Pacific Mail. Very little freight is shipped from Colon across the Isthmus for these two ports, the average rate of $40 a ton to Buenaventura making it too high.

TRANSIT OF FOREIGN TRADE.

Essentially the foreign trade of Colombia flows in and out of its Caribbean ports, and of these Barranquilla and Cartagena are chief, 80 per cent of the entire commerce of the country passing through them. Of this amount Barranquilla has much the larger share, its proportion being from 60 to 65 per cent of the whole. Barranquilla has 40,000 inhabitants and is growing. The population of Cartagena is 27,000. With cargoes once landed at either of these ports, the same means are required for reaching the interior. Internal transportation in Colombia is by means of the rivers, a few railway spurs, cart roads, mule trails, and bridle paths. The great central artery is the Magdalena River with its affluents. The Magdalena is navi-

gable by boats of 3½ feet draft for 600 miles to Dorada. At that point a railway line runs 15 miles around the rapids at Honda, which require a portage either by rail or by mules. Navigation is resumed at Arrancaplumas, a mile above Honda. Steamboats of 2½ feet draft continue navigation to Girardot, 100 miles above, and sometimes they proceed another 100 miles to Neiva. At Girardot there is a railway line, which is the route to Bogota. It now runs to Hospicio, about 50 miles distant. At Hospicio the mule trail is resumed for 18 miles over a very broken country to a station known as Madrid, on the railway between Facatativa and Bogota. There is also a cart road from Cambao, above Honda, over which heavy goods are carted to Facatativa, which is the beginning of the railway, 26 miles long, to Bogota. The greater proportion of the freight for Bogota heretofore has been transported by means of mule pack trains from Honda over a very rugged road to Facatativa.

INTERIOR LINES OF TRAVEL.

Points in the interior which are reached from lower down the river are dependent largely on the mule trails and canoe courses. The Cauca, which is the largest of the tributaries of the Magdalena, is the artery for a very large region extending to the Pacific coast. Small river steamers ply through its waters, but a large freight traffic is carried on in ordinary canoes. On the smaller rivers which empty into the Magdalena these boats are practically the only means of transportation, the few steam launches which have been introduced generally having been discarded after a brief trial owing to the inability of the native boatmen to repair the machinery if at any time it happened to get out of order.

The major portion of the inhabitants of Colombia live in the plateaus and rolling highlands between the mountain ranges east of the Magdalena and toward the Venezuelan border. A populous region contiguous to Venezuela markets its products and secures a portion of its supplies through Maracaibo, the customs post being Cucuta, the commercial capital of this district. The tendency of the commerce, however, is to avoid the difficulties which arise in passing through foreign territory, and the measures of the Government are also directed to diverting the traffic to the Magdalena.

DISTRIBUTING STATIONS FOR LOCAL TRADE.

On the lower river are some flourishing towns which are centers of considerable local traffic, and along the entire course are stations called "bodegas," where large warehouses are located for storing the goods that are received both for export and import. The largest of these bodegas are those that by means of canoes and mule transports supply

the city of Bucaramanga, which is the commercial capital and an important distributing center of the Department of Santander. Of these points, Puerto Wilches and Bodega Central handle the heaviest share of the traffic.

On the western bank of the river the most important station is Puerto Berrio, 500 miles from the mouth, which is the receiving point for a large section of the Department of Antioquia and the distributing depot for coffee and other products of that region. A railway runs from Puerto Berrio 65 miles to Providencia, from which terminus freight is transported by mules crossing the mountains to Medellin, the capital of the Department and the most important commercial city in Colombia.

SMALL AND SLOW RIVER STEAMBOATS.

The river steamboats are of the stern-wheel type seen on the Ohio River plying between Pittsburg and the Mississippi, but most of these steamboats were built in Germany. The largest ones have a nominal freight capacity of 330 tons, but with the majority it is actually about 250 tons. Their freight-carrying capacity is increased by the use of bongoes, or launches, which are towed alongside and which can hold 50 tons of freight. Two and sometimes three of these bongoes are attached to the steamboats. Wood is used for fuel and is supplied at various places along the river, much time being consumed in loading it. All the boats carry passengers, but the schedule is arranged chiefly with regard to the cargoes. From the mouth of the river at Barranquilla the time required for the trip up to Dorada, 600 miles, varies from eight to twelve days according to the condition of the river and the success in avoiding the sand bars. From Arrancaplumas, above Dorada, the time to Girardot is two days. The down trip is made in a little more than half the time.

CAUSES FOR HIGH FREIGHT CHARGES.

From this statement of the facilities of navigation and the difficulties surrounding it, as well as the lack of means of transportation to the interior, it is not hard to understand why freight rates are so high. Rates from New York are usually quoted at $9 a ton; and while the quotations from European ports are higher, the actual rates paid by European shippers probably are no more. From Barranquilla or Cartagena to the interior the charge on general merchandise may be placed at from $17 to $18 per ton. Freight via Barranquilla is received from ocean steamships at Puerto Colombia and transported over a railway 18 miles in length and then carted across from the railway station to the river wharves. Barranquilla cherishes the hope that its commercial importance may continue to increase in the future even

more rapidly than in the past by opening up the mouth of the Magdalena so that the shifting sand bars will no longer keep ocean craft from coming up to the city. Funds were subscribed by the business community to secure a survey with a view to making these improvements, or rather to convince the Government of their practicability, and American engineers undertook the work. Freight consigned via Cartagena is unloaded directly from the steamships to the railway cars and is then carried 65 miles by rail along the line of the old dike or canal which formerly formed a means of water communication to the Magdalena. The railway terminus is Calamar, and the cargo is there transferred to the river steamboats.

Insurance charges, on account of the difficulties of transportation, are high, and this adds to the ultimate cost. The Government collects a fluvial tax, which has varied from $2 to $4 per ton, on merchandise passing up the river, for the nominal purpose of improving and keeping open the channel, though on some specified articles deductions are made. A rate war between the rival steamboat companies which broke out in 1906 kept the charges lower for a year, but an agreement was finally reached which restored the old rates. For cargoes transported down the river the charge is from 20 to 30 per cent less than on the up-river freight, and the Government tax is proportionately lower.

EFFORTS BEING MADE TO REDUCE RATES.

The railway charge for freight carried from the terminus of the lower Magdalena navigation at Dorada to Arrancaplumas, just above Honda rapids, a distance of less than 20 miles, at one time was $7 per ton. It was only lowered when the companies sent their boats farther up, to Caracoli, just below the rapids, where the cargo was transferred to mules and the railway charges avoided. This navigation is difficult and dangerous; and while it has not been entirely discontinued, the steamboat companies have shown a disposition to arrange a compromise with the railway since the latter lowered its charges to $5 and $4 a ton. The metric ton of 2,204 pounds is understood, though in the case of light freight the companies exercise their option of classifying it by cubic measurement. The cost of mule transportation from Honda to Facatativa varies, but it sometimes has exceeded $5 per "carga" of 250 pounds, the maximum mule burden.

On the cart road from Cambao above Honda heavy freight is carried to Facatativa and transferred to the railroad, but the charges are so excessive that it is only used for cargoes which can not be transported by any other route. The Government has made large appropriations for improving this road with a view to reducing the charges. Whatever route is taken it can be understood why freight from the point of shipment in the United States or Europe to Bogota

sometimes has cost $100 a ton. Locomotives sold at $10,000 in Philadelphia have cost the Facatativa Railway $30,000 when the freight up the river and across the Cordilleras was paid.

PUBLIC IMPROVEMENTS

This description of the means and the high cost of transportation in Colombia is necessary in order to understand the comprehensive project of public improvements on which the present administration has entered. It includes new bridle paths, mule trails, and cart roads for providing communication between points in the interior, but the leading idea is to develop a railway system in connection with the Magdalena. The geographical importance of the river is apparent from a look at a map, or from the accepted statement that it is the great central artery through which the commerce to and from the coast must be conducted. Access to this river is of vital importance to the entire region extending on the east to Venezuela, and a considerable section of the country to the west is also dependent on it, though Antioquia and the Cauca Valley in time will have their own system of connected communication bringing them to the Caribbean and to the Pacific.

The present railway system of Colombia consists merely of local lines aggregating about 500 miles, no one of which as yet exceeds 100 miles. These lines are as follows: From the port of Santa Marta to Fundacion; Puerto Colombia to Barranquilla; Cartagena to Calomar; Cucuta to the Zulia River on the Venezuelan border; Facatativa to Bogota; Bogota to Zipaquira and beyond; Bogota to Sibate; Dorada to Ambalema; Girardot to Hospicio; Puerto Berrio to Providencia; Buenaventura on the Pacific toward Cali. There are also some very short lines on the upper Magdalena which serve limited local territory.

URGENCY OF BETTER INLAND COMMUNICATION.

The political as well as the commercial requirements of the country make it necessary to improve the means of access to the capital. The most urgent measures of the present administration have been aimed to secure complete railway connection with the Magdalena. This is to be done by completing the Girardot line from Hospicio, its present terminus, to Facatativa, the total distance from the river being 80 miles. Very grave engineering difficulties are encountered, owing to the topography of the region traversed, and sections of this railroad have been interfered with by landslides. A very liberal subsidy has been granted by the Government to the English capitalists who acquired it along with the steamboat line, and construction is being pushed forward with the expectation that the road will be

completed and opened for traffic by July 1, 1908. This will be the most significant achievement in the railway policy of President Reyes. The Dorada line is also being extended, so that ultimately it will reach Tocaima on the Girardot Railway, and then there will be through railway communication from Dorada and Honda to Bogota, avoiding the necessity of transferring freight and passengers to the smaller steamers on the upper Magdalena. The extension from Honda to Ambalema was opened in September.

COMPREHENSIVE PLANS FOR EXTENSION OF RAILWAYS.

The general railway scheme for the territory east of the Magdalena assumes the feasibility of through rail communication from Bogota north to the Caribbean coast. Though this is not considered as among the early necessities, since points on the lower Magdalena will serve the purposes of commerce sufficiently, the purpose is observed in the concessions and franchises now granted for railway construction. The programme, as officially declared, is to prolong the Northern Railroad, which now extends from Bogota through Zipaquira as far as Chiquinquira, to Bucaramanga, and thence to Puerto Wilches on the lower Magdalena. The distance from Bucaramanga to Puerto Wilches is 95 miles, and the line is said to offer no great difficulties of an engineering nature. A concession in the form of a contract has also been granted to European capitalists for a railway from Cucuta to Tamalameque, a few miles below Puerto Wilches. Engineers are making surveys for both lines. Steamers of 800 tons can navigate as far as Tamalameque and Puerto Wilches, and if the railway line should reach either of these points there would be a very marked saving in freights, since small ocean vessels would be able to secure much of the ocean traffic. It is also assumed that at some time in the future the line from Santa Marta, which is being slowly extended in order to develop the cultivation of bananas, will reach Banco still farther down the river, and the freight will be diverted from Cartagena and Barranquilla to the port of Santa Marta, with its splendid harbor. However, this is not an immediate prospect.

CONSOLIDATION ON THE PACIFIC SIDE.

On the west or Pacific side of the Magdalena the purpose of the Government is to consolidate into a single line several of the railways now under construction or planned, so that the port of Buenaventura also will have through communication with Bogota. This system whenever completed will join Cali, Cartago, and other points on the Cauca River with the cities of Manizales and Medellin, and will follow the Magdalena from Puerto Berrio in a southerly direction to the junction of La Maria on the Dorada Railway. It is the expecta-

tion of the Government that the line which now extends from Puerto Berrio to Providencia will soon be completed across the very difficult mountain region to Medellin, a distance of 78 miles. This scheme has for many years been in project, and the Department of Antioquia at different periods has advanced funds, but financial difficulties have supervened, contractors have failed to raise the promised capital, and the rails have been pushed a few miles at a time by the Department and by its citizens. The present plan, to which the National Government is lending aid, is to secure the early completion of the railway by an arrangement with the English syndicate which is building the Girardot line. To this end very liberal subsidies have been granted. About a mile and a half of tunneling, it is said, will be required, and this is the expenditure for which there has been difficulty in securing cooperation between the National Government, the Department of Antioquia, and the capitalists. If the missing section be built, Medellin will then, by means of the railroad, be more accessible to the Magdalena, and consequently both to Bogota and to the Caribbean coast.

COLOMBIA CENTRAL RAILWAY—GOVERNMENT LINES.

A project which is of great importance in the development of Colombia, and which gives promise of fruition, since it has the support of American capitalists, is the building of a standard-gage railway from the Gulf of Uraba, at the mouth of the Leon River, through the Cauca, with a branch to Medellin, continuing the main trunk along the Cauca to Cartago and Popayan and to the border of Ecuador. This line follows closely the intercontinental survey, and is the route which was strongly advocated by Chief Engineer Shunk as the most feasible and best commercial outlet for the Pan-American Railway to the Caribbean. On its Caribbean terminus at the mouth of the Leon River it is proposed to establish the city and port of Ciudad Reyes. Some work has been done in providing for quays and wharves, and a short section of the line has been built. This railway is known as the Colombia Central.

The Government owns or controls four lines in the existing railway systems. These are the Southern, running from Bogota to Sibate; the one from Facatativa to Bogota, usually called the Sabana, because it traverses the savannas or plain; the Barranquilla-Puerto Colombia Railway; and the Pacific coast line from Buenaventura, which has now been extended 36 miles from the coast toward Cali. The concession for the latter extension through to Bogota is held by Americans, but some difficulties having arisen it is understood that the Government will resume control temporarily.

ENGLISH TRANSPORTATION INTERESTS.

The other railways, except two or three purely local lines of a few miles in length, are owned by English capitalists. One group of financiers owns the line from Cartagena to Calamar, and is negotiating for the purchase of the short line between Puerto Colombia and Barranquilla, which has been operated by a private corporation, the Government having the option of repurchasing it. The same financiers also own one of the leading lines of river steamboats which are operated in connection with the railway from Cartagena to Calamar. This joint system of railroad and steamship transportation originally was owned and operated by a Boston company, but in 1904 the entire properties were transferred to the London capitalists.

This group of capitalists is building the line from Girardot, on the upper Magdalena, through to the proposed connection of the Sabana Railway at Facatativa for Bogota. They have the project for completing the line from Puerto Berrio to Medellin. It is assumed that a working arrangement will be made with the English company which operates the Dorada Railway, though heretofore these interests have been in opposition, and that through bills of lading will be issued for freight from the coast to Bogota. The Santa Marta Railway, which is independent of all other systems, is an English corporation.

Notwithstanding that they are disconnected links, most of the present railway lines pay fair dividends on the capital invested, and give encouragement for further investments in order to provide the extensions which are essential.

PROGRESS OF RAILWAY CONSTRUCTION.

The history of railway construction in Colombia during the last quarter of a century has been a most discouraging one. Numerous concessions were made to natives and to foreigners who were supposed to have the necessary capital, and in some instances bonds were floated, but the actual construction amounted to nothing. The civil wars and revolutions also interfered. Nevertheless the prospect for the future is brighter. Since President Reyes assumed office in August, 1904, 125 miles of new construction has been carried out. This seems very small, but its importance is to be measured in the knowledge that it is greater than the entire construction during the previous twenty-five years, and it is an augury for the success of the comprehensive railway policy which is so prominent a feature of the administrative programme. The policy of the Government is to grant a subsidy in the form of interest-bearing bonds for a specific number of kilometers or miles, as they may be completed. Liberal

land grants are also made. In the recent concessions a percentage of the customs receipts has been dedicated to the payment of the interest and the creation of a sinking fund. Naturally the value of these bonds depends on the credit which Colombia is able to command and on her success in gradually developing her internal resources. A very decided benefit will also result from the transfer of a part of the inhabitants who are now engaged in transportation to the more directly productive industries. On account of the dependence which has to be placed upon mules and other beasts of burden, it is estimated that one-third of the able-bodied population is employed in some form of transportation. This would be far too large a proportion in any country, but it is especially so in a country like Colombia, which needs to have the energies of the inhabitants more directly employed in agriculture and similar productive occupations.

MAIL AND TELEGRAPH SERVICES.

The mail service of Colombia, notwithstanding the limited districts served by the railway lines, is excellently organized and administered. Widely separated communities are reached with a regularity that greatly facilitates business, the mail routes covered by the mule carriers being interwoven in a central system and new ones opened from time to time. Under recent contracts with the Government the service on the Magdalena to and from the coast will be expedited.

The national telegraph lines, which are operated as a branch of the postal department, are also well administered. Considering the mountainous character of most of the country and the difficulties of erecting poles and stringing wires, a very complete system has been established. From both the Caribbean and the Pacific coasts the most distant parts of the interior may be reached. The lines aggregate about 6,300 miles.

NATURAL PRODUCTS.

For the foreign manufacturers the chief benefit from the improvement of the means of communication will lie in the cheaper freight rates secured for the introduction and distribution of their goods, and this should insure increased consumption. For the natives of the country this is important, but of even greater value will be the enlarged facilities for getting out the natural products. A review of the products of Colombia will show on what its purchasing power depends. They may be roughly classed as agricultural and mineral.

CULTIVATION OF COFFEE.

For many years coffee has been the staple agricultural crop, the United States sometimes taking this product to the amount of $5,000,000, and Europe almost as much, in a single season. Colombia, like all coffee-producing countries, is more or less subject to the dominating and depressing influence of the Brazilian crop. That it is not entirely governed by Brazil is due to the superior grade which is grown and marketed under the general term of "Colombian coffee." On account of this superiority a fair price has been maintained when ordinary coffee could not be gathered and marketed at a profit. Bogota coffee, especially, has been able to maintain a steady price in the New York market, and also that from Medellin and some other favored districts, but a portion of the crop is included in the common grade and is known as "café dulce" or "sweet coffee." When the prices are low and the market depressed this naturally lowers the general average received for the entire Colombian product. While the cultivation of coffee will be continued in Colombia, and perhaps extended, since there is much good land yet untouched, it is not likely that this crop will continue to be the leading factor in furnishing the country with the means for foreign purchases.

TOBACCO AND RUBBER.

Colombian tobacco is of good quality, and the production, it is believed, can be considerably augmented. Germany takes substantially the entire export product, Bremen being the port to which it is shipped. In order to stimulate home industries prohibitive protective duties have been placed on the importation of foreign cigars and cigarettes. This has interfered somewhat with the Cuban trade, but its results in stimulating the domestic industry are not yet apparent. The planting of a large area would add to the crop exported. The productive lands are contiguous to the coast and to the upper Magdalena in the Ambalema district.

Rubber might be called one of Colombia's reserve crops. The exact production for any given year is not easily ascertained, because in what is known as the Caqueta region, which is tributary to the Amazon, there is reason to suppose that much of the rubber gathered is not accounted for except as it appears in the returns of the Amazon commerce passing through Para, and therefore credited to Brazil. The treaty with Brazil which settled the disputed boundaries should result in opening up this territory and increasing the quantity of crude rubber gathered. The Government has made provision for bridle paths and mule trails to the Caqueta. Some crude gum is also taken from the districts adjoining the Magdalena River, and concessions for its exploitation have been made to French and other com-

panies which have had experience in the Kongo. Gathering this rubber is carried on in connection with the collection of ivory nuts. It is obtained by the natives from wild trees, a sufficient time not yet having elapsed to secure returns from the cultivated trees.

In the districts tributary to the Atrato and Sinu rivers in past years considerable quantities of wild rubber have been obtained, and the supply is not yet entirely exhausted, but the future reliance is very largely on the cultivated trees. Many plantations exist in this region, and it is claimed that some of the trees which are only of six years' growth are already producing the milk, but in general the commercial results from these plantations are yet to be demonstrated.

SUGAR AND CACAO.

Sugar cane is grown in the Cauca Valley in the savannas or plains tributary to the upper Magdalena, along the lower river, and on the Caribbean coast. The most successful plantations are those in the Cauca Valley which are owned and operated by Americans. Extensive central mills have been erected by them in the Cali district, and the native consumption is supplied not only for the adjoining districts but for more distant interior points. On the upper Magdalena and on the coast cultivation has not, so far, been attempted on a large scale, but many little plantations operating small mills have supplied the local demand. The product consumed by the mass of the population is panela, or sweet brown sugar, which is not a by-product and therefore does not lose its saccharine qualities. The cultivation of sugar cane on a more extensive scale is now proposed. A Colombian company is erecting a large central mill near Cartagena, which when completed will be able to grind the production of a much larger area than is now under cultivation in this district and export the product. A French company is also erecting a large mill in the upper Magdalena district near Girardot with a view to supplying the local demand. Aguardiente, or cane rum, is one of the by-products which encourage the growing of sugar cane.

Colombia has a very large area of excellent sugar lands yet untouched, and these have been examined by Louisiana and Hawaiian planters with a view to future cultivation, though no extensive purchases have yet been made. It is the assumption that ultimately sugar will be grown not only to meet the entire local demand, but also to supply the central mills which will be able to grind for export. Refined sugar and German beet sugar are imported in large quantities notwithstanding the very high tariff duties, but they are consumed mainly by the wealthier classes.

Cacao, or the chocolate bean, is a probable future export product. Notwithstanding the plentiful moist lowlands which are suitable for the cultivation of cacao, Colombia never has done much with this

crop. At times the native product has not been equal to the home demand, which is considerable, and foreign chocolate has been imported. There is a wild cacao with small beans which are very rich in oil, and its exploitation might furnish the basis for a good export trade.

COTTON CULTIVATION.

Cotton is produced along the coast and in a lesser degree in the interior, but this is one of the crops which is in its infancy. Until quite recently nothing like systematic and scientific cultivation has been attempted. The picking has been careless and the ginning very poor, so that the price obtained for the few thousand bales exported has been low. Energetic measures of the National Administration to secure scientific growing give excellent promise of making cotton a leading export crop, but this will take years and possibly will require colonization, since labor is not abundant. The Government experimental farm at Apulo, near the upper Magdalena, is giving favorable results, but the largest area of productive cotton lands lies near the Caribbean and in the Cauca Valley. During the present season Peruvian cotton seed of the finest variety has been imported in large quantities by the Government and distributed freely among the growers, who have been enthusiastic over the prospect and have promised careful cultivation. Other means also have been taken for securing a better knowledge of the best methods of planting and cropping. Pamphlets giving detailed information have been published and special representatives have been appointed to study cotton production in Peru, the United States, and Egypt. The Government suggested that a fund of $1,000,000 gold provided by the banks of the various cities would enable cotton cultivation to be established as a national industry, and some of them have made advances.

While Colombia is entering on an extensive scheme of cotton cultivation, there is no probability that for a great many years the cotton itself will be manufactured in quantities to supply the domestic demand. A small mill at Cartagena turns out a rough article for which there is a good local market. At Medellin a cotton mill has been established on a larger scale with modern machinery, and it is doing very well, but instances like this do not indicate a general growth of the cotton manufacturing industry in the near future.

FOREST PRODUCTS, FIBERS, AND FRUITS.

Among the miscellaneous tropical articles for which Colombia has an assured market is the palm-tree product known as "tagua," or "ivory nuts," which form the bone button used extensively in commerce. The gathering of the ivory nuts is carried on somewhat intermittently by the natives.

Dividivi, the bark of which is used in tanning, is exported, and numerous dyewoods are obtained in quantities to meet the variable

demand. There are numerous medicinal plants, among them ipecac, which find a good market, but these products can hardly be said to be systematically exported, though the aggregate value of the exports is considerable.

Cedar, mahogany, and other cabinet woods have been exported for many years, and this exportation is not likely to decline, but up to this time it can not be said that Colombia's timber resources have been fully exploited. Large forest areas have been left untouched because of the lack of transport facilities. When these facilities are provided the timber exports will form a leading feature in the foreign commerce.

The list of fibers which have a commercial value is a long one. It includes fique, or maguey, and various forms of henequen. Many of these fibers heretofore have served simply for domestic uses, being woven into mats and other household articles, but some commercial exportation of them is now going on. The increase in the shipment of straw hats of a fine quality is becoming noticeable and is forming a marked feature of the export trade.. The hats are manufactured in the interior regions, the Suaza district being the best known and giving its name to the exported article.

Among tropical fruits bananas and cocoanuts are the only ones exported in quantities sufficient to give them place in the trade returns. The bananas are almost entirely from the Santa Marta district and their value exceeds $500,000 annually, but there are other large areas in the region tributary to the Gulf of Uraba, which are capable of producing them either for the fruit or for the fiber.

THE CATTLE INDUSTRY.

Cattle and hides are a staple export and a most valuable one. While there are fine pasture ranges in the interior and unusually good cattle are raised, the cost of transportation makes their exportation impracticable, and the animals which are shipped come from the districts contiguous to the Caribbean, the lower Magdalena, and the Sinu River. Heretofore the cattle have been taken by Cuba and the other islands of the West Indies, but a movement has begun for shipments to Colon with a view to supplying a portion of the fresh beef which is required for consumption by the Panama Canal employees and the rest of the population. The Isthmus of Panama is a natural market, Colon being only 300 miles distant from Cartagena, which is the leading point of export for live cattle. The cattle ranges will be enlarged when refrigerating plants are established, and dressed beef also will be shipped. Cartagena and other Caribbean ports would have decided advantages over Chicago in this respect. The hides exported are from all sections of the country and constitute one of the most valuable means of income.

BOUNTIES ON EXPORTS.

With the leading natural products for export understood, their probable growth can be studied in the light of measures taken by the Government to foment several of them. In July, 1907, a decree was issued by the President granting bounties on various articles of agricultural production. These were cotton, coffee, tobacco, and rubber. On cotton the bounty is $1 gold for each quintal (110 pounds) cleaned and packed for domestic consumption or for exportation. This bounty will be paid on the production of cotton until October 1, 1908, that period covering the crops planted in the fall of 1907 and the spring of 1908. From this date until October 1, 1910, it will be paid only on cotton exported.

A premium of $1 is provided on each quintal of coffee exported until July 20, 1910. Various tropical producing countries which derive a portion of their revenues from the export duty on coffee in times of depression have remitted the export tax, but Colombia, I believe, is the only country which has granted a bounty on the export crop. The measure is intended to be a temporary one. Its purpose is to enable the Colombian coffee producers to get rid of their crop in the depressed condition of the world's market and to secure the ingress of capital for circulation.

A bounty of $1 is provided on each quintal (110 pounds) of tobacco exported until July 20, 1910. On rubber exported the bounty is $4 per quintal, provided it is from plantations of cultivated trees. This bounty is to last until July 20, 1914. The bounties are to be provided for by the application of 5 per cent of the import duties, to be set aside as a special fund, against which warrants are to be issued.

The bounties may be considered as experimental and tentative, and the fact that they are merely decrees indicates their temporary character, but there is little question that those on rubber and cotton will be continued so long as the results are good, while the coffee premium is only meant to tide over a temporary depression.

A further measure for encouraging the agricultural interests was the lowering of the export duty on cattle from $3 to $1 per head, but the steamship companies, by raising their freight rates, partially nullified the benefit of this remission.

MINERAL PRODUCTION.

Colombia has mined the precious metals for centuries, ranking with the foremost gold-producing countries of the world. It hardly can be said that the old mines which the Spanish worked have been exhausted, for they still continue to produce, but chiefly in proportion as new machinery and modern methods are employed. There are also the possibilities always present in a mineral region of new

discoveries, but practical miners, while not denying that some day bonanza strikes may be made, prefer to look for immediate returns to mines already known. Improved means of transportation are rendering some of these more accessible and profitable.

SHIPMENTS OF GOLD AND SILVER.

Gold continues to be the leading shipment, the ore and bullion which are exported through the various ports amounting to about $4,000,000 annually. Gold mining is both for quartz and for placer deposits, but the latter is now receiving the most attention. The leading gold regions are those in the Department of Antioquia and the one known as the Choco, along the San Juan and the Atrato rivers. The latter has for a long period been exploited for the placers, but in a somewhat crude form. Dredging machinery as first introduced did not prove very successful, and much of the capital outlay gave no results, the old hand washings being resorted to after various experiments. This also is true of the placer deposits in the regions of the Porce and Neche rivers in Antioquia. However, experience in California and New Zealand is now being drawn on, and within the past year some dredges of the type in use in the Orville district of California have been contracted for and others are likely to be purchased. Improved machinery also has been imported for the quartz mines.

The silver mines of Tolima and other sections have not been worked at a profit during the last few years except in a few instances. Their exploitation is now being undertaken more systematically.

Of the other metals, platinum, found in the Choco, has long been one of Colombia's most valuable products. The methods of working it by the natives are still primitive, but considerable quantities are obtained by them. A French company is seeking to extract it from the quartz as well as from the placers. Inquiries on this subject have been answered in the Daily Consular and Trade Reports. A recent decree declared all future discoveries of platinum and its correlated metals to be Government monopolies.

PRECIOUS STONES.

The emerald mines of Colombia are famous, particularly those of Muzo, 75 miles from Bogota. They are controlled absolutely by the State, and at present an increased revenue is obtained from the leases made to the company which works them. Private parties are prohibited from denouncing emerald mines in the future, and those already denounced can only be worked by the payment of $60,000 annually from the time production begins, and can not be offered for private sale, the Government reserving the right of purchase. The five

quality of product is still limited to a few mines, notwithstanding that considerable capital has been expended in working other deposits.

The future of the precious metals in Colombia, particularly gold and silver, is encouraging, because of the systematic methods which are now employed by groups of capitalists who make mining a business, and instead of prospecting at haphazard carefully determine their ground and then exploit it fully. Several groups of American and English capitalists are engaged in development of this kind. In past years some fairly good mines have been worked under difficulties because of insufficient capital. This deficiency is now being met, and with the necessary working capital there is good reason to look for increased output.

COAL AND IRON.

It is a question whether in the future the baser minerals will not prove a more profitable source of revenue to Colombia than the precious metals. The existence of coal in widely separated regions is fully determined. In Bogota and in the interior the bituminous mines are worked crudely because the local demand is limited, but with transportation facilities provided, the deposits of the Sierra Nevadas, with Santa Marta as the shipping port, the anthracite deposits of Cali, and the great coal beds of the Cauca have unlimited commercial possibilities. It is generally assumed that by the time the Panama Canal is opened the anthracite coal contiguous to the Pacific coast will find a very profitable market. Before that, however, there is the probability that an outlet for the Cauca coal to the Caribbean will be obtained through railway construction and a large measure of the West Indian carrying trade be supplied by this means.

The iron ore which exists in the interior does not give promise of early development on a large scale. The modest manner in which La Paradera foundry, near Bogota, is conducted shows that the growth of the iron and steel industries in Colombia, even where the coal and the ore lie closely together, as they do in this region, will not be rapid.

PETROLEUM, ASPHALT, AND COPPER.

The petroleum deposits are mainly in the coast region. Their commercial value is still problematical. Some of the oil obtained has been tested, and while showing good results for lubricating purposes has proved to be low in illuminating power. It is possible that petroleum may be obtained for fuel purposes, and this would be of great benefit to the river steamboats, which can not afford the space necessary for carrying coal for fuel, and are therefore dependent on wood obtained along the river. Oil of an average illuminating quality would find a good domestic market, since that consumed by the great mass of the people is of the lowest grade—that is, 110°.

The asphalt deposits are a valuable property, the product being of the high quality used in varnishes. The chief shipments are from a point on the Magdalena River called Rosario. The mine lies back from the river three days by mule and canoe transport.

The value of the copper, manganese, tin, and other minerals which are known to exist in different sections of the country is yet to be determined. Their immediate commercial possibilities do not appear to be great.

MARKET REQUIREMENTS.

From the general review that has been made of the prospective development of Colombia, it follows that since the transportation enterprises and the improvement of agriculture are leading factors, the greatest market will be for iron and steel products in all forms. The purchase of railway material already has begun. Unfortunately for the United States the control of nearly all the railways which are being extended is in the hands of English companies, and this has resulted in diverting purchases to the United Kingdom. The capitalists who acquired the Cartagena-Calamar Railway and the Magdalena steamboat line from the Boston interests in the extensions and improvements made have bought rails and other material entirely in England. The Dorada Railway also procured the rails for its extension in England. It is possible that the rails in the future will continue to be bought in England for the use of the companies which are controlled by British capital, though there is no reason why they could not be exported from American ports as cheaply as when shipped from Great Britain. Even under foreign ownership the probability is that the bulk of the rolling stock will be bought in the United States. American builders of locomotives and cars understand the requirements of the Colombian roads, and most of the rolling stock is American. On the lines controlled by the Government preference is shown for American locomotives and equipment. The group of American capitalists who acquired the concession for the Colombia Central Railway bought all the material in the United States for the terminal facilities and for the short section of the line which was laid at Ciudad Reyes, and their purchases will continue to be made there. Most of the steam excavators, dump carts, wheelbarrows, etc., for which there is a good market, because of the increased construction, are bought in the United States. Part of the bridge work on existing lines has been secured by English bridge builders. From the topographical character of the country, railways in Colombia require much bridge material, and the opportunities of this market in connection with the new lines and the lines under construction are worth the attention of the American bridge companies.

MACHINERY AND FARM IMPLEMENTS.

The market for machinery of all kinds is not only a growing but also a permanent one, and agricultural implements present the most promising field. Colombia is one of the countries in which the American makers of farm tools have done excellent pioneer work, and is not a strange land to some of them, but suggestions may be made for the benefit of those who are not yet familiar with this field, and also for those who, in exploiting it, may have overlooked several essential points.

The first point is that Colombia, from its topography and its variety of climate, has agriculture of both tropical and temperate climates. Notwithstanding that they lie so close to the equator the high plains which are surrounded by the Cordilleras, owing to their altitude, are unusually fine regions for growing the cereals. These savannas, as they are called, range in height from 5,000 to 10,000 feet, some of the most fertile and extensive being at the latter altitude. Many of their conditions are similar to those of the grain-growing regions of the United States and require farm tools of a similar character and quality. The coast lands and lower river valleys present all the conditions of tropical agriculture; that is, for the cultivation of sugar cane, cotton, fruits of all kinds, and also Indian corn. Coffee may be considered as tropical, since it is grown in the hot regions on the mountain slopes, from 1,500 feet up to 5,000 feet. Rice is semitropical. Indian corn and some other crops in the most favored districts give three yields a year, but two are usually considered more profitable.

PRESENCE OF AMERICAN MACHINES.

American manufacturers when they first entered this market began with commoner and smaller grades of farm tools, and the entrance into the field was quite recent—not more than five years ago. Encouraging success has been had with plows, and now five or six well-known makes are to be found. The soil requires a good quality of blade. Some plows have been imported of a very cheap kind, which could be sold as low as $10 gold, but the market generally has called for a much better article. The present tendency is toward the higher-priced plows, with a marked preference for the disks. Notwithstanding the higher price, these are beginning to command a ready sale. A disk plow, for which the factory price is, say, $35, retails in Bogota for $135, but the retail charge for most farm tools is about three times the factory price.

Harvesting machinery, especially the smaller mowers and reapers, is also in favor, and the sale is capable of considerable extension. The use of the harvesters heretofore has been confined to the larger

haciendas, or farms, but some of the smaller farms are beginning to make use of them. At one little railway station, from which an important mule trail branches, I saw five harvesters of American make from three different factories. Harrows have a fair sale. Complicated cultivators are not favored, because of the difficulty in getting the native laborers to use them. A potato cultivator on which great hopes were built was a failure, because the mechanism was not simple enough. Some seed drills, however, have been introduced. A small corn sheller, which is quite simple in its operation, has secured a very good market, but a rice huller, because of a more complicated movement, has not found buyers.

EUROPEAN COMPETITION.

Until two years ago English steam thrashers monopolized the market. One reason was that the American makers had not learned how to pack them. The first American thrasher arrived in such bad condition that when put together it would not work. A second importation from the same factory in Pennsylvania, with more care in the packing, was fairly successful. A year ago an Ohio thrasher was brought in, and it seemed to meet the needs of the savanna districts in some special points. An order for a second one was soon given, and this Ohio thrasher is now the best sales agent for American thrashing machines that could be desired, since it furnishes a satisfactory working sample. The thrashers are employed as in the States, one machine doing service for several farmers.

In hoes, adzes, spades, and shovels American makers have not done so well. The domestic implements of this kind are very crude and unsatisfactory, but the native is not willing to pay for an article of first-rate quality, and the English and Germans have the bulk of this trade. English cast-steel hoe blades of 2½ and 3½ pounds have held the market against the United States. The machete, or cane cutter, a formidable knife, capable of a variety of uses in the hands of the native, from chopping a soft wood tree to cutting cane, is probably the largest single import among farm tools. A well-known New England firm always has had the cream of this market, but in the flush times of the home demand its Colombian orders have fallen behind from twelve to eighteen months. In consequence, an English machete of a good quality, which sells about 10 per cent cheaper, has been able to secure increased sales, but the greatest increase has been obtained by the German imitation machetes. These are manufactured in almost exactly the form and appearance of the American machete, and, though the quality is much poorer, the price is cheaper, and a large sale has been built up.

MACHINERY FOR IRRIGATION.

The introduction of irrigating machinery is quite recent. Ordinary pumps, mostly of New York manufacture, have been in good demand, and there has been some call for windmills. Among the first windmills brought in were several of 4 tons weight of steel. These cost the importer $400 f. o. b. New York, but by the time they had been transported to the Bogota savanna their net cost was $1,000 and the asking retail price was $1,500. Two or three were set up and appeared to give satisfaction, but their use has not extended. The reason appears to be ignorance on the part of the farmers as to their handling. This also applies to much other agricultural machinery. The manufacturers of the most expensive machines sent out their own demonstrators in the beginning, but the lack of competent local erecting engineers is felt. The leading importers keep duplicate parts, yet in case of accident there is sometimes difficulty in adjusting them properly. The more progressive Colombian farmers of the wealthy classes usually manage to find among their peons or laborers one or two with sufficient intelligence to manage the improved machinery, yet it takes time for these peons to master the intricacies of a broken or out-of-gear machine. Notwithstanding these drawbacks, irrigating machinery has been contracted for by a few wealthy landowners. The initial difficulty here was not only the lack of experience, but also the heavy cost. Among some recent contracts, the lowest for which a small irrigating plant could be delivered, with duties, freight, and insurance prepaid, was $12,000, while a larger plant cost $30,000 to install.

SUGAR AND COFFEE MACHINES.

In sugar machinery the United States is behind Europe. Substantially all the installation for the larger mills is from abroad. The mill which French capitalists are erecting near Girardot will be supplied with French and Belgian machinery. The mill near Cartagena which Columbian capitalists are putting up will be fitted out chiefly with English machinery. Some American firms responded to the information given by Consul Manning at Cartagena of the proposed building of this central mill by sending catalogues, but none of them, apparently, was enterprising enough to send a special representative down, though the voyage could have been made in nine or ten days. On the smaller plantations, where the cane is ground by the local producers, some trapiches, or small sugar mills, are supplied by American makers, and the evaporating pans are also from the United States.

England heretofore has had the advantage in supplying coffee machinery, though not enjoying a monopoly. Recently more enterprise has been shown by American manufacturers, and they are now obtain-

ing their share of this market. Flour mills are supplied from the United States. If the protection policy of the Colombian Government in developing a native flour industry is successful it will be at the expense of the American flour mills, but there may be some compensation in the opportunity which the makers of milling machinery will have to supply the installations.

COTTON AND MINING MACHINERY.

The matter of cotton gins and cotton machinery generally has heretofore been brought to the attention of makers in the United States in information I have forwarded. If the movement to make Colombia a cotton-growing country has even a fair measure of success, this should be a good market for cotton ginning and similar machinery. In a statement published by the Government the following estimate was made of the cost of a plant delivered at Barranquilla, the duties being included: 1 gin, capable of cleaning 20 hundredweight daily, $300; 1 hydraulic press, capacity 500 pounds, $1,600; 1 hydraulic press, capacity 150 pounds, $800; 1 vapor motor with boiler, $1,500. The two presses should be capable of extracting the oil from the seed. Makers of cotton machinery can judge the correctness of this estimate.

Mining machinery is divided between England and the United States. The mines which are owned by English capitalists generally get their machinery from the United Kingdom. Those controlled by the Americans buy exclusively in the United States. In Antioquia most of the stamp mills are from the United States, and the dredging machinery, which will be employed to a greater extent in the future, will come from the United States. Dynamite and other explosives used in the mines are divided between the United States and Europe.

MACHINERY EXHIBITS.

A general suggestion in regard to machinery, and particularly farm implements, may be made. In July a local exposition, the first of the kind that the country has known, was held in Bogota. Though the space was limited, room was found for a machinery exhibit, and American agricultural implements excited much favorable attention. In 1910 a national exposition will be held in Bogota, and it is not too early for American manufacturers to make their plans for full representation in it.

The leading firms in Bogota which handle American farm machinery are liberal advertisers in the newspapers, but the manufacturers themselves would find it advantageous to supplement this advertising by a fuller distribution of attractive lithographs and wall posters showing all their manufactures. From observation at several

points I should say that the English makers are more enterprising in this regard than are the American manufacturers. However, the best advertisement for American farm tools is undoubtedly a sample in actual operation. While in the district surrounding Bogota these farm tools are now well known, there is yet an unexploited field in the Cauca Valley region. An American who has been engaged in the business suggests that this district should receive attention.

A few ice machines have been sold on the coast, usually to Americans. American safes are the only ones which are bought. All the leading makes of American typewriters are sold, and the market for them is a very good one. Some of the native firms which have handled the leading typewriters have shown unusual enterprise, and to this is due their popularity.

HARDWARE AND TOOLS.

In household hardware, the market is divided between Germany, Great Britain, and the United States, in about the order named. Germany, of course, furnishes the cheaper grades. The United States is credited with from 25 to 30 per cent of the cutlery importations, but in this are included some of the smaller farm implements. In machine tools, notwithstanding its supremacy, the United States does not make a good showing. France supplies a considerable quantity of carpenters' tools. There is a very large market for padlocks, as an inspection of the cabins and dwellings, as well as the warehouses and business houses throughout Colombia, shows. Germany has had the lead in this trade, especially since the demand is for the cheaper locks, but a well-known New England firm has entered the field, and notwithstanding the higher price its goods are found in many shops and stores. A representative of this firm recently made a trip to the interior with satisfactory results. Malleable iron goods, enameled ironware, and lampware are controlled by Germany. Only the cheapest kind of enameled ware finds a sale. A large part of the poorer population of Colombia still use crude pottery utensils of their own make for cooking and for other household purposes. Both England and the United States have a share in the sale of flatirons, which is large.

In the matter of saws there is a division between Great Britain and Germany, Sheffield and Birmingham furnishing the better quality, and Germany the cheap grades. Some American saws are in use, but the statement usually made by dealers is that they are too high priced to secure more than a limited sale. As a result of some of the railway projects which will open up timber regions, a large number of sawmills are certain to be established, and these mills should be supplied from the United States. Chains are imported chiefly from England.

SHEET AND OTHER METAL PRODUCTS.

England has a lead, which almost amounts to a monopoly, in the sale of corrugated iron products. Sheet-iron roofing is very extensive, and is even beginning to supplant the grass roofs of many of the native houses. All of this comes from England. Local importers with whom I have talked have invariably stated that the English sheet-iron roofing is cheaper and better than can be obtained from the United States, though they do not profess to know the reason. The United States, however, supplies the metal ceiling, which is well suited for the tropical climate, and is found in some of the business houses and dwellings. Wire nails are from the United States, both German and English efforts to hold the market for nails having been unsuccessful. Sewing machines are chiefly from the United States, though the company which has factories in England and Germany, as well as in the United States, sometimes supplies the local demand from its Glasgow factory. Cooking stoves of American manufacture, and durable without being too heavy, would command a reasonably good market if pushed, but their sale was seriously affected by the bad packing of a large consignment from Philadelphia. However, this setback need not be considered as a permanent one. There is practically no market for oil and gas stoves, notwithstanding that on the savannas these would seem to be very desirable during the damp and cold season. A few foreigners use them, but the natives say they are unhealthy, and prefer to suffer discomfort rather than to trust them.

In barbed wire, which is used extensively on the cattle ranges, the United States maintains a lead which gives it a virtual monopoly, although Germany, by providing a cheaper grade which reels more yards from the spool and causes the buyer to think he is getting more for his money, has been able to obtain a foothold. The leading importers of barbed wire have insisted that, with the exception of a few small importations from England, all of this article comes from the United States, but the custom-house returns do not bear out this statement. Woven-wire fencing has a good though limited market.

ELECTRICAL APPARATUS.

The future of electrical apparatus is fairly encouraging, though it will not be called a booming one until Colombia begins to turn to its vast water power in the mountain regions for manufacturing purposes. Up to the present time there are few lighting plants in the larger cities, the one at Cartagena being a municipal enterprise. In Bogota and elsewhere, however, private companies supply the lights. The representative of an American company who has been in Colombia for the past year has made contracts with companies in Bucaramanga and other cities for electric-lighting plants. The American

company installs the plant, and if desired provides experienced men to run it, but they become employees of the local corporation. In some towns which are making provision for electric installation this will be done by private companies under contract with the municipalities to furnish light. In a few places in the high savannas, between the mountain ranges, it has been found that the use of coal will be cheaper than the water power, coal being abundant and mined at very low prices. On the Magdalena River some of the steamboat companies tried the experiment of providing searchlights and electric lights, but the enterprise did not meet with sufficient appreciation and the dynamos were removed.

England.

ELECTRICITY GRADUALLY BEING INSTALLED.

The contract has been made for electrifying the Bogota street-car systems, and this introduction of the trolley in the capital is about the most important electric installation that is now under way. On many of the coffee and sugar plantations, however, small electric-light plants have been installed, and as the wealthier plantation owners gradually regain their former prosperity the installation of these small plants should become more common. The telegraph and telephone systems of the country are being constantly extended, and there is some increase in the demand for electrical material on account of these extensions.

Considering that so large an area of Colombia lies within the Torrid Zone, there is a surprising lack of cooling appliances and other minor uses of electricity. This is especially noticeable in the coast cities, where it is rare to see an electric fan, notwithstanding the great discomforts of the heated spell, which lasts most of the year. Persistency along this line by a determined representative might result in the introduction and the extensive use of these smaller appliances.

MOTOR AND OTHER ROAD VEHICLES.

Colombia does not offer much encouragement to the introduction of motor cars for personal use. Some of the towns have good roads for a short distance, and in the savanna of Bogota there are excellent ones, but generally the use of automobiles would be limited on account of the lack of thoroughfares. A few are encountered, some being small runabouts and others expensive cars. They are necessarily a luxury of the very rich, because the fuel cost is so high. The present price of gasoline is almost prohibitive. There is, however, a possibility of developing motor cars to a limited extent for transport purposes, the presumption being that at some future time fuel may be cheapened. A company was formed in the city of Medellin for an automobile line and opened correspondence with European

manufacturers. It also has been proposed to secure motor cars for transport on the Cambao cart road, but traction engines have already been contracted for on this highway. They are to be capable of hauling cargoes of 3 tons. Road engines have been imported from England, but they have been too heavy for the bridges, though they have had a limited use. Inquiries for traction engines have been referred by Consul-General White, of Bogota, to American makers. A few fine carriages for personal use have been imported from the United States by Americans, but the common hacks and cabs, which are used in large numbers, come from France.

MOTOR BOATS.

There should be a good market for motor boats along the coast and in the tributary rivers, but for various reasons the demand is quite limited. One trouble is the inability of the natives to repair them when out of order, or even to keep them from rusting by applying frequent coats of paint. On the Cauca the introduction of small motor boats was proposed, but it was found that the freight could be handled more cheaply in the canoes which are already in use and which are propelled by poles. A few Americans and other foreigners along the Caribbean coast and up the rivers have motor launches, but even they find the high cost of fuel a drawback. The kerosene launch equipped with sail is better adapted for this purpose, but its cost, as compared with the gasoline launch is almost prohibitive, as kerosene is very expensive fuel. This subject has been covered in detail in the Daily Consular and Trade Reports.

TEXTILES.

With respect to textiles, which, classed together, form the largest single item of the imports, the same condition is to be noticed as in supplying agricultural machinery; that is, the wide variety of climate. While there are heavy importations of cottons and woolen mixtures for the Torrid Zone, it must be remembered that the plateaus, which are the most densely populated, have a cold as well as a hot temperature, and that there is a rainy season which calls for comfortable clothing. Overcoats are worn by many of the men in Bogota during the afternoon, and always after the sun goes down, while the women's garments are also of material suitable for these changes in temperature. The majority of the men frequently wear a poncho or blanket over the ordinary garments.

COTTON PIECE GOODS.

Some detailed information for the benefit of the cotton mills of the United States, previously forwarded, recognized freely that Manchester has captured much of the trade formerly held by the

United States. The cotton-goods market is too valuable, and too certain to grow, for the American mills to allow this condition to continue permanently. "Americans," or "gray domestics," as they are called by the Colombian trade, are those which offer the best field for the mills of the United States. On the coast white duck for men's wear is still obtained from the United States mills, but generally those mills have failed to cultivate the market for prints. In a few instances they have supplied the selected prints as called for, but usually orders have been ignored. Like all the natives of the Tropics, the majority of the Colombians want bright and gaudy colors. Manchester meets this demand even to imitating American Turkey reds in inferior quality, which of course can be sold at a lower price. Germany is also doing something in this line, and Italy has secured an entrance to the market. Barcelona always has had a small trade, which increases slightly.

PURCHASES FROM EUROPE.

The situation as to cottons may be summed up in the statement that the majority of Colombian importers buy from Manchester and other points in Europe because they get an article which suits the Colombian demand at lower prices than they can obtain it from the American mills, and also because of the longer credits granted. It is admitted that the Americans are superior in quality, and the suggestion made by importers is that the quality might be slightly reduced in order to give lower prices. Colombian houses which take up and popularize calicoes or other cotton cloths also want to retain the exclusive sale of such goods. They complain that when they had created a market, the American mills supplying them furnished the same line of goods to their competitors.

The United States market for cottons was at its best from 1895 to 1899. The civil war in Colombia then interrupted trade, and this, taken with the home demand, caused the American mills to show indifference, of which Manchester was quick to take advantage. After the restoration of peace the American mills apparently made little systematic effort to regain the trade, though a few representatives and manufacturing agents visited the country. One of these represented 24 mills. The Colombian houses all say that when the needs of the market were explained, and promises made that their orders would be strictly followed, those promises were not kept. So they turned again to Manchester.

WOOLEN AND OTHER MANUFACTURES.

In woolen mixtures of various kinds, including shawls, Germany has the lead. There is a fair importation of these goods and also of ready-made clothing. France holds a substantial monopoly of

the trade in silks and fine dry goods, which is considerable, since the wealthier classes in Bogota and the other cities follow the latest Parisian modes. Felt hats are imported both from England and from Germany, the cheaper grade coming from Germany. An American felt hat which finds a good sale in Mexico and other Spanish-American countries apparently has not been introduced into Colombia. It would be especially adaptable to ranches of the interior. Fine derby and silk hats are imported chiefly from London.

Coffee bags and burlap covering are imported from England. Carpets and rugs are from Germany and England.

In all kinds of textiles, and especially in cotton, woolen, silk, and linen mixtures, exporters should inform themselves in detail, through correspondence with their Colombian buyers, of the requirements of the tariff. The schedules, if not carefully followed, sometimes cause a garment which may be four-fifths cotton with a woolen or silk thread to be classed at the much higher rates which are assessed on silks or woolens. The selling price of textile goods is usually about 100 per cent above the factory price.

LEATHER GOODS.

Colombia is a good, though somewhat limited, market for leather goods. This is apparent from the great extent to which transportation is carried on by pack animals, and also from the custom of the country which makes everybody a horseback or muleback rider. Some saddles of a well-known American make are established in the favor of the wealthier classes, but most of the saddles and the accouterments are of domestic manufacture, there being many skilled saddle makers. The saddletree in almost universal use is of a well-known French make. Hides are exported to England and Germany, and a few to the United States, for tanning for this trade and then reimported into Colombia. Alligator skins are treated in the same way. About 40,000 alligators are killed yearly by the holder of the privilege, and nearly all the skins are exported.

The boot and shoe market has been described so fully in the Daily Consular and Trade Reports that only a brief mention will be given it. At Cartagena and Barranquilla there are local factories which employ Boston and St. Louis machinery. A good shoe can be obtained for $3.25 to $3.50 at retail, fully equal in quality and durability to the American shoe which is sold for the same price in the United States. The poorer classes wear the alpargata, which is more of a sandal than a shoe, and is made from the native fibers. The middle and wealthier classes show a marked preference for American shoes, especially in Bogota and the other cities. The women usually prefer the French high-heel shoe to its American counterpart, but this is because of the prevalence of French fashions.

ALIMENTARY PRODUCTS.

In breadstuffs Colombia does not feed herself. Notwithstanding that in the plateaus and valleys excellent wheat is grown, the difficulties of transportation from these interior districts make the United States the natural source of supply of wheat flour for the entire coast districts. At a very moderate duty flour from the United States can be delivered at Cartagena, Barranquilla, and the Magdalena River points cheaper than it can be brought across the mountains from the savannas of Bogota. This has been recognized, and for years the American flour trade has been a very profitable one, at the same time enabling the inhabitants along the coast to feed themselves at reasonable prices. After the increase of 70 per cent over the then existing tariff rate that went into effect in 1905, the flour shipments dropped materially, and they have continued to drop, but it has been simply a case of decreased consumption, for the people along the Caribbean Sea have not been able to buy flour at all, and bread has become a luxury to them. Instead of the revenues being increased by the heavy addition to the tariff duties, they have fallen off. A more moderate duty would probably give sufficient protection to the Colombian mills within the sphere through which transportation facilities afford them a market, and at the same time enable the coast population to procure American flour, though the total sales might not rise to the figures of former years.

EFFECT OF TARIFF RATES.

A flour mill was established on the coast when the new duties went into effect and American wheat was imported, but the authorities ruled that the flour from this mill must pay a duty equal to the customs schedule, so there was no cheapening of bread through this means, and the enterprise was not a success. On account of the locust plague, duties on foreign wheat have been remitted temporarily; but with the impost on flour manufactured from foreign wheat this affords little relief.

American packing-house products also suffered from this horizontal increase in the tariff. Lard is still imported, but the consumption is much less than in previous years. Formerly it was received in cans of from 1 to 5 pounds, suitable for transportation and for the local trade, but since the increase in the tariff it has been imported mainly in heavy tierces. Both American and English hams are imported, but not in large quantities. There are considerable importations of olive oil from France and of tinned butter from Europe.

BEVERAGES AND RELISHES.

French wines and liquors have a very good market and both American and Scotch whiskies are imported. Milwaukee beer competes with German beer successfully at some points, and notwithstanding that local breweries are flourishing industries the demand for foreign beers does not fall off.

In a large variety of relishes, pickles, etc., England has the best of the market over the United States, though there is a fair American trade, which is susceptible to an increase by pushing. Mineral waters are supplied from Europe, but a share in this trade could be secured by the United States.

MISCELLANEOUS GOODS.

Drugs and medicines are supplied by the United States, Germany, and, to a smaller extent, England. The United States leads in what is known as patent medicines, emulsions, oils, etc. France has the trade in fine cosmetics and perfumeries and Germany in the cheaper articles.

Some paints and varnishes are received from the United States, but this trade could be expanded, especially in roofing paints. The torrid heat necessitates frequent repainting.

There appears to be an opening for office and household furniture. I have seen fewer roll-top desks than in any other foreign country, notwithstanding that these usually command a ready market. American wicker furniture is in favor among the wealthier classes.

The United States furnishes some of the paper that is used, though when lithographs and similar printed matter is included under the heading of "stationery" misleading conclusions may be reached. "Sized" stationery and other writing material is imported from Germany, with special reference to the moist and torrid heat. Wall paper is also supplied by Germany.

Structural steel for building is almost unknown, cement being the leading imported material for construction.

NATIONAL INDUSTRIES.

Colombia's national industries, so far as they exist, are the outgrowth of her agricultural conditions. The National Agricultural College and the cotton experimental farm are efforts to educate the people up to the possibilities of their own resources, and so is the Institute of Artisans, with its 16,000 pupils in the night schools of the different cities, which are undertaking to give practical instruction. The textile factory at Providencia is the visible expression of a national aspiration. The manufactories that exist are largely local and supply only a limited territory. All these domestic industries

and working schools of industries to develop native products may be encouraged without fear that imports from abroad will be lessened. Every factory that may be installed will secure its machinery from abroad, and with the growth of the industrial classes there will be also a higher standard of living and the increased purchases that come from such a standard.

IMMIGRATION MEASURES.

Little has been done by Colombia at any time to secure immigration, but some tentative measures looking to that end have been taken within the last two years. One plan is for the migration of Austro-Hungarian families into Antioquia. Another is to secure white European immigration for the Sierra Nevada regions back of Santa Marta. The plains and valleys of the Sierra Nevada are very fertile and are suitable for natives of northern climates, though their inaccessibility heretofore has kept out population. On the coast there are possibilities of immigration from the West Indies, but a more promising scheme is to secure immigrants from the Mediterranean countries to engage in fruit culture and cotton growing in the regions adjacent to the Gulf of Uraba and the Atrato River. Native labor employed in construction and similar work commands 50 cents gold per day, and is about two-thirds as efficient as in the North. Farm labor is not so well paid.

PACKING REQUIREMENTS.

In discussing briefly the familiar subject of packing it is a pleasure to state that the usual criticisms are not to be leveled against some American manufacturers, especially the makers of farm machinery. One element of the success which has attended the firms whose implements have found favor in the Colombian market has been the attention they have given to packing, heeding suggestions from the Colombian importers, and employing packers familiar with all the needs of tropical climate and of mule and river transport. Others are seeking information and desirous of taking advantage of it, while there is a third class to whom it is useless to make suggestions of any sort, because these are always disregarded.

In the first place, it should be remembered in packing goods that they have a long river transport, often at a temperature above 100° F., and with a degree of moisture in the atmosphere that penetrates and molds unless the greatest care is taken. Straw, if exposed to the air, rots in a very short time. In the second place, the fact that the package or box, or whatever else it may be, must undergo considerable knocking about in the transfer from ocean steamship to railway, from railway to river steamboat, from river steamboat to railway again, and then to beasts of burden or bullock carts, always must be borne in mind.

Another point concerning which caution is given is that the tarpaulin or burlap cover of boxes must always be sewed. Frequently nails are driven through the covering by inexperienced shippers in order to strengthen the packing boxes. They rust quickly in the hot, moist atmosphere, rot the tarpaulin, and the entire outside covering is soon torn away. The nails could be driven just as easily before the burlap is placed over the packing case.

ADVANTAGES OF SMALL PACKAGES.

On the mule trails torrential rains are not infrequent, and, sure-footed as the mule is, there are occasional missteps, which cause it to roll over with its cargo, and if this is badly packed irreparable damage is certain to follow. Moreover, the limit of the mule's carrying capacity over the mountains is 250 pounds, and the burden should never exceed that weight, and as far as possible should be put up so that it can be evenly balanced, 125 pounds on each side. This is not always practicable, but usually it can be done. Where the weight is more than 125 pounds the difficulties are increased and the expense also. The limit of weight which can be adjusted is 160 pounds. The mule pack train carrying freight from Honda to Bogota presents an aspect of varied interest and also affords excellent object lessons in observing all the details on which the importers insist. In one pack train I noticed that four cases of dry goods in burlap coverings, held by light cotton "ties," or iron hoops, was one animal's burden, while other merchandise in boxes was loaded two on each side. Hardware was in evenly balanced packages; liquors in small kegs, four to five on each side, and petroleum in cases, six of which formed the carga.

In view of the occasional accidents which result from the mules rolling over the precipices with part of a cargo of machinery it is suggested that the boxes and their contents be numbered. Then when a single part is lost a description can be given and it can be replaced.

MACHINERY SHIPMENTS.

Concerning agricultural implements and machinery generally, all machinery should be knocked down as far as possible. After the implement is knocked down every part or piece should be plainly marked or numbered, so as to avoid trouble in setting up. Cases should be made of boards not less than seven-eighths of an inch in thickness, 2-inch nails should be used, and after the case is nailed down it should be strapped with iron on both ends and around the center. In packing the several parts of an implement care should be used to tie them with wire, wrapping the most delicate parts in pieces of burlap. Wooden crosspieces should be used inside the case to prevent the parts shaking and rubbing against each other. Plenty of straw should be employed to make the packing tight. Bolts, nuts, and very small pieces should be tied together and wrapped in burlap,

because it so often happens that a hole is broken through the case, and then bolts and screws are sure to be lost. Some American implements which in every other way are excellently packed are inclosed in pine boxing that is too brittle.

Most importers make a special point of keeping duplicate parts of machinery in stock, and these should be packed separately to guard against loss. A modern printing press was ordered for Popayan, in southern Colombia. Owing to an accident to one of the mules one of the parts was lost. The buyers were not familiar enough with the machine to describe what was lacking; they only knew that something was gone, and since they could not describe the missing part they made no effort to secure its duplicate from the manufacturers. That printing press is in a warehouse in Popayan, the plan to introduce American printing presses has failed, and old-style hand presses are still being used.

SOLIDITY AND WEIGHT.

While solid packing is essential some shippers make the mistake of considering that solidity can not be secured without heaviness, and in consequence their packages are too weighty. English and German exporters of cement are competitors. The English cement is shipped in heavy casks. The Germans found the means of hooping the cement so that as it hardened it became easily capable of transportation, and they got the advantage of their English competitors for that reason.

It is well understood that there is no article which can not be transported through the jungles and over the terrific mountain passes by the practiced Colombian freighters. Bogota has more pianos to the number of its residences than almost any city of similar size. These usually are carried up the river to the Cambao cart road and transferred to the bullock carts, but when the very rough sections of the road and the mountains are reached they are slung on poles and carried by men. Interior towns which do not have the benefit of cart roads enjoy the luxury of pianos which have been brought in on the backs of men.

The packing of cotton goods and similar articles does not need to be described in detail. Some of the jobbing houses on the coast import in packages of 2,500 yards from Manchester and then repack for their interior trade; but this is not the general rule, and textiles of all kinds should be packed for transportation to the interior when that is their destination.

RESULTS FROM BAD PACKING.

Having stated that some American manufacturers have met the difficult conditions of packing for Colombian transportation, it is also necessary to cite instances of a contrary kind. Manufacturers

must get rid of the idea that a big machine or agricultural implement can be crated whole and shipped to Colombia as they would ship it from Chicago to New York. Where there is a cart road this may be done, but the freight charge is so heavy that it is prohibitive. In some places machinery parts which mules can not carry are transported by steers. These animals can carry 400 pounds, but they can only travel in the morning from 5 o'clock until 10.

Here are examples of bad packing of agricultural implements: A firm in Bogota ordered a seed drill, the maker of which promised to have the machine knocked down and packed according to instructions, but what he did was to send the whole thing in two cases, one of which weighed over 700 pounds. The factory price of this machine was $64, and the freight from Cambao to Bogota alone cost $240, or nearly four times the original cost of the drill. When this cost was added to the ocean freight, the river freight, and the railway freight, the Bogota firm charged it all up to profit and loss, and ordered no more seed drills from that factory, though there is a market for these implements. Another manufacturer shipped two large and complicated potato diggers, packing each whole machine in a crate. The result was that the importers received two lots of scrap iron, all the small parts being lost and most of the large ones broken. A Philadelphia firm had a promising market for cooking stoves, but packed the cast-iron parts, which were almost as brittle as glass, as if they were unbreakable. The consignment when received proved also to be a heap of scrap iron.

I give these few instances because it is the universal rule among Colombian importers not to order a second lot of goods where the packing is bad. Even with allowances for salvage from the exporting firm the pecuniary loss is too great to be compensated for, aside from the inevitable irritation and the failure to have in stock the articles ordered.

DUTIES AND TRADE CUSTOMS.

Since the customs duties are levied on gross weight it is important to have the outside covering as light as possible. In textiles much loss is sometimes suffered through ignorance or indifference in this matter.

Related to packing is the general question of trade customs and business methods which obtain in Colombian commerce. The necessity of employing the Spanish language in catalogues and other printed matter in the South American trade is now so well understood, and the facilities for getting out such catalogues are so general, that this subject does not need to be dwelt on in detail. It is also now easy to obtain the services of Americans who speak Spanish and are familiar with the Latin-American countries, or at

these are not to be had, there are plenty of German commercial drummers who are willing to drum up trade for American houses, and everybody knows that the German drummer never starts out to a country until he knows its language thoroughly. In all Colombia there are not one hundred American citizens registered at the consulates, and it is doubtful that if at any time more than a hundred could be located in all the regions, but there is no South American country in which so large a proportion of natives are found who speak English and who have traveled in the United States. This is stated not to encourage the delusion that a knowledge of Spanish is unnecessary, but in order to show that there is a receptive class for the introduction of American goods.

VALUE OF SAMPLES.

The matter of samples is a most important one, and in this respect American manufacturers are very slow to appreciate the situation. In Bogota there are several sales agents who carry large lines of samples, so complete, in fact, that the buyer who visits them has before him as complete an assortment of goods from which to select as if he were in the centers of manufacturing industries. The largest of these establishments are conducted by Germans, but there are also French and English sales representatives. One sample room which I visited was as varied as a New York department store. It might be said that not an article which is in demand in Colombia was unrepresented in this wareroom. The bulk of the contribution was from Manchester and Hamburg firms. There were some articles from American manufacturers, but nothing like a complete assortment, though the manager was particularly anxious to secure trade from the United States, and pointed out various lines in which he could handle American goods more advantageously than English and German articles. The samples were reenforced by catalogues, price lists, and other printed matter. More attention to supplying samples is essential for American manufacturers who want their share of the Colombian trade. As to catalogues, in all the consulates visited I noticed that the consuls kept these well arranged and were painstaking in bringing them to the attention of local dealers.

The commercial directories which have been supplied to the Bureau of Manufactures by the American consuls, who have exercised great care in compiling them, are available for the mills of the United States and exporters generally, but in making use of them discrimination should be shown, and where a Colombian house opens correspondence with a view to handling American goods it should be given the opportunity without being subjected to competition by a rival house. Most of the leading Colombian firms send one of their members to the United States and to Europe once every two years. The

United States has the great advantage, from its geographical proximity, of saving time in receiving and filling orders.

TARIFF SCHEDULES.

Understanding of the tariff schedules is essential. These might have been considered in connection with packing, but they have a wider scope, and I have therefore taken them up for separate consideration. It is important for the American exporter to realize that the Colombian schedules are based on weight, and that specific rates are assessed on that basis, the metric system being used exclusively. Rates are imposed with the kilogram (2.2 pounds) as the unit, and not the hundredweight or the ton. The tariff schedules are divided into numerous classes, the nature of which, together with the rates of duty, can be obtained from the Bureau of Manufactures. In general terms it may be said that articles of merchandise are divided according to the raw material of which they are composed—that is, cotton, wool, iron, etc.—except those which are included under the head of alimentary substances, beverages, and other liquids, articles for lighting, drugs and medicines, perfumery and soaps, and miscellaneous articles. Correspondence with importing houses is the best means of learning the details which are necessary to be observed in making out invoices of shipments according to tariff schedules. The fees for invoices are so high as to form a real hindrance to Colombian commerce, and the foreign ministers in Bogota were informed recently that the Government had taken up this subject with a view to reducing the fees and systematizing the regulations. Inquiries on this point may be made from the Colombian consuls in the different American cities.

SURTAXES AND EXEMPTIONS.

The existing Colombian tariff was fixed in 1903 on a scale of specific rates of duty ranging from 1 cent per kilogram (2.2 pounds) upward to $1.50. In 1905 a surtax of 70 per cent was added, and in 1907 an additional surtax of 2 per cent, the proceeds of which were to be devoted to combating the locust plague. A number of articles which enter into the prospective manufacturing development of the country were exempted. These included leather, iron, coloring matter for tissues, wool yarn, wool, and cotton and jute threads. There are also various other products specified on which a reduced surtax is levied, but as an offset for these reductions especially increased duties were laid on tobacco, alcoholic beverages, sugar, and salt. Since the duties are levied on gross weight and not on values, and the sole accounting made is of the duties collected, the only means of ascertaining the value of the imports is through the consular invoices. A calculation

made by Consul Demers of the imports through Barranquilla during 1906 fixed the duty collected at 64 per cent ad valorem.

INTERNATIONAL COMPETITION.

The competitors for the trade of Colombia are the United States, Great Britain, Germany, France, and in a smaller degree Italy and Spain. The United States, from its geographical location, is a natural source of supply for the foodstuffs that are imported, and it should also be the leading source of supply for iron and steel manufactures and for textiles. It does not, however, take the lead in these articles. The increase of 70 per cent in the duties on foodstuffs has caused a large falling off in the flour shipments from the United States and in lard and packing-house products. This surtax has also been felt in the rice shipments, but in this respect Hamburg and Liverpool have been the chief sufferers. Petroleum shipments have also decreased very largely on account of the surtax, and since there is no native supply the sufferers have been the Colombian consumers. Tariff rates and the motives governing them are of course purely domestic matters to be determined in accordance with national policies in Colombia, as in other countries; but it is a question whether, after further experience in the loss of revenues and the hardships imposed on the consuming classes, the Government will not find it expedient to modify these duties. If that be done there will be an important revival of breadstuffs and packing-house products shipped from the United States.

EUROPEAN DOMINATION.

Owing to the lack until recently of a statistical department, figures regarding imports into Colombia, and in a lesser degree exports from the country, are confusing and unsatisfactory, being based, as they necessarily are, on the statistics of the different countries, with the usual difference in allowance for freights, insurance, and other charges. It is apparent, however, that during the last year or two Great Britain has taken a decided stride in the lead. One reason seems to be that in the United States it has not been fully recognized that the separation of Panama has not interfered with the course of trade and industry in Colombia; and, moreover, there appears to be ignorance of the fact that the civil war was ended five years ago and that the country has been peaceful since then. Great Britain has gained the advantage through regaining the piece-goods market and through its heavy investments of capital in transportation enterprises. Proportionately it has lost less than the United States from the imposition of the surtax, but this would not account for its leadership in the matter of exports.

BRITISH RAILWAY EQUIPMENT.

In describing the transportation enterprises I have explained how a group of English capitalists bought out the American company which controlled the Cartagena-Calamar Railway and the river steamboat line. The English capitalists reason that while the United States may take a larger share of Colombian exports, the larger investment of British capital entitles the United Kingdom to the majority of the import trade. They have followed out this principle by buying their steel rails and equipment in Great Britain, and also their coal, which formerly came from West Virginia, the freight rate being $1.50 per ton from Newport News to the Caribbean ports. The Dorada Railway and the Santa Marta Railway, being both English corporations, have followed the same practice. As I have stated, this lead in iron and steel exports is not likely to continue long.

SHARES OF GERMANY AND FRANCE.

While Germany, in Colombia as in other South American countries, has little capital invested in productive enterprises, she has reasons for sharing the Colombian trade. German capital is invested in some of the river transportation enterprises, and though there is no German bank, some of the largest commercial houses do a banking business with German capital. At Barranquilla about half the importing houses are controlled by German capital. In the interior cities this is not the case, as the Colombian houses predominate, but Germany is better represented than Great Britain. Germany is also a market for Colombian tobacco, dyewoods, and a number of miscellaneous products. Since a German house advanced funds to the Government and was given the monopoly on hides the shipments of these to Germany also have increased.

France has a larger share in the Colombian trade than is generally understood. She buys Colombian coffee and rubber direct, and in the years before the war which began in 1899 the trade between the two countries amounted to $8,000,000 or $9,000,000 annually. France supplies Colombia with fine wines and liquors, olive oils, fine dry goods, and miscellaneous articles. Not all the shipments are credited to France, some of the dry goods being supplied through Hamburg.

The leading imports of the United States from Colombia are coffee, hides, rubber, cedar and mahogany, gold and silver, and other mineral products. While there is a natural competition between the United States and European countries for the trade of Colombia, I have been impressed with the suggestion of one of the foreign ministers that both Europe and the United States will find it advantageous to cooperate in furnishing capital to develop the country's resources, by that means increasing the buying power, and then compete for the increased trade that results.

FISCAL AFFAIRS.

The customs revenues of Colombia are from $7,000,000 to $7,500,000 annually. They are collected chiefly as import duties, but the export duties on cattle, ore, and bullion and the ordinary port charges enter into this total. The customs-houses on the Atlantic or Caribbean coast are Barranquilla, Cartagena, Santa Marta, and Rio Hacha; on the Pacific, Buenaventura and Tumaco. There are the interior customs posts, Cucuta on the frontier of Venezuela, Ipiales on the frontier of Ecuador, and Arauca and Orocua on the borders of the territories. There are also customs-houses at Putamayo and Cacacho, in the Amazon territory, which were created in 1907 with a view to securing to Colombia the revenues that might accrue in that territory. At some of the minor entry ports, notably those on the Pacific coast, rebates of from 25 to 50 per cent are allowed on the regular duties in order to serve the special needs of these isolated sections.

The internal revenues of the Government are drawn from a number of articles which are state monopolies and from miscellaneous sources. The total income is approximately $5,000,000, the state monopolies contributing the major part. The miscellaneous sources include the stamp tax, the emerald mines and the mining taxes, the returns from the postal and telegraph lines, and the railway lines which are operated by the Government. Among the state monopolies the salt tax yields about $500,000 annually. The salt mines are operated entirely by the Government. They are located in the district of Zipaquira, near Bogota. Depots or warehouses are established for distributing salt to consumers throughout the country and rates are fixed at which the product is sold. The salt produced along the seacoast is also controlled by the Government, and this product is distributed a considerable distance into the interior.

RECOGNITION OF MONOPOLIES.

The system of state monopolies was given the fullest recognition in executive decrees and legislative decrees or laws passed in 1905. By this legislation liquors, tobacco, matches, cigarettes, and hides were nationalized and provison made for their manufacture and sale. Foreign liquors were also included with native alcoholic products, paying the internal-revenue duties in addition to the tariff duties. The system was not entirely new, for previously most of the articles enumerated had been controlled by the different departments, some of which operated them as monopolies, while others granted licenses to private individuals. In nationalizing these sources of revenue the Government made provision for indemnifying the departments and the individuals who held licenses.

The monopoly on hides and the slaughter of cattle was in the nature of a new impost, never having been enforced except in some districts

of Cauca. Since the bulk of this revenue is collected from the hides that are exported, this might more properly be called an export tax, but the collection is made and the accounting had at the place of slaughter, so that it is included in the internal imposts. Hides for local industries and native consumption, however, pay a small impost, as well as those for foreign exportation. A German mercantile and banking firm was given the control of the impost on hides, having advanced funds to the Government for a loan.

COLLECTION OF REVENUES ON NATIVE PRODUCTS.

Collection of the liquor, tobacco, and match imposts was transferred by the Government to a private syndicate, which was subsequently organized into the Banco Central that has since administered them. Under the contract with the Government, as modified at various times, the Banco Central has the complete management of the state monopolies, and collects the revenues therefrom, getting a commission of 5 per cent. In the beginning the amount was larger. While the system might appear open to objections, it is a form of taxation that has been inherited from Spanish colonial days, and it was not new to the inhabitants of Colombia, the various departments, as stated, having previously enforced it, but with very poor financial returns. Since these monopolies have been nationalized and the management of the revenues from them placed under the control of a single agency, the increase in the receipts has been marked, so large in fact as to afford material aid to the Government in its search for income and to justify the policy followed.

A heavy increase in the price of aguardiente, or cane rum, and other alcoholic products followed the nationalization of the product, but there has been little objection raised to this increased price. The outcome is similar to that of the internal-revenue tax on whisky in the United States. A very beneficial moral result, which can not be measured in financial terms, is also said to have been achieved in the betterment of the great mass of the laboring population. When the rum and the other alcoholic products were very cheap large masses of these were most of the time in a condition of semidrunkenness, but after the price was raised beyond their means of buying an immediate improvement was noted, and this also was seen in the greater efficiency of their labor. In connection with the state monoply a special decree regulated the use of denaturized alcohol for use in industry, heating, or lighting.

THE NATIONAL CURRENCY.

The fiscal system of Colombia, both as relates to the revenues and as regards the currency, can only be understood by a fuller explanation of the institution known as the Banco Central. The intention

was to have it bear something of the relation to the Government that the Bank of France bears to France and the Bank of England to Great Britain, but its functions are not exactly the same as the functions of those institutions. Its permanent usefulness in rehabilitating the demoralized and discredited paper currency and in strengthening the public credit of Colombia, both at home and abroad, will require some years to be demonstrated. Legal provision was made for the organization of the bank by legislative decree of March, 1905, and by supplementary decrees and laws. At that time the economic condition of the country was at the lowest ebb and an acute financial panic prevailed. The Government was in straits and appealed to the established banks for a loan of $2,000,000 and for aid to the finances of the country in various specified ways. The existing banks were unable to meet the conditions, and in consequence the new financial institution was organized by a group of capitalists who enjoyed close relations with the Government. The capital was fixed at $8,000,000 gold and the stock at 80,000 shares, of which the concessionaires were to subscribe 60 per cent, the balance was to be solicited from the public. With some encouragement from the Government the subscriptions were made and the gold was secured. The bank was given a franchise of thirty years for the exclusive issue of bank notes on a gold basis, the reserve to be 30 per cent gold. It was also made the depository of the national and the department funds and was authorized to establish agencies and branches. Other provisions defined its functions as the fiscal agent of the Government, and special contracts, such as the one relating to the State monopolies of liquors, etc., fixed its functions in the collection of the revenues. It was also the medium employed for the reissue of new notes to replace the paper currency in circulation, and it was given the work of the gradual conversion of the paper currency into gold.

PASSING FROM GOLD TO PAPER.

The history of the Colombian paper currency is a melancholy one, especially for a country that had for more than a century coined its own money from the product of its mines. From 1753 to 1887 the mints of Bogota, Medellin, and Popayan coined $165,855,000 gold and $17,692,000 silver. The first issues of paper currency were made in January, 1881. According to an official report, from January 1, 1881, to February 28, 1903, $660,679,630 were issued, and in 1904 an additional issue of $100,000,000 was provided to replace old notes that were to be destroyed. A trifle over $22,000,000 was burned in February, 1903, leaving total outstanding issues of $738,598,581, and of this $107,147,665 was afterwards incinerated, so that on January 1, 1906, there was in circulation $631,450,916. In addition to this there was $102,450,000 of note issues of the departments of Antioquia,

Bolivar, Cauca, and Santander. The original paper currency was issued under the sanction of the Government by the financial institution known as the Banco Nacional, which failed disastrously during the period of the civil wars.

It is a chapter in financial history that at one time within the last third of a century gold in Colombia was at a discount. Silver currency prevailed in Panama before the separation to the exclusion of the bank notes, in some of the districts of Santander along the Venezuelan border, in the Choco, and in one or two other regions. In these localities the old Colombian coins and foreign silver have never been displaced by the paper emissions.

FLUCTUATION AND DISCOUNT.

For a time the fluctuations of the notes were not violent, and the discount was only the usual one that obtains in exchange, but with the civil wars, the agricultural depression, and the frequency of the new issues the inevitable result came and the paper currency continued to drop. At one time, soon after the separation of Panama, exchange was 26,000 to 100—that is, $26,000 of the Colombian notes were necessary to buy a draft of $100 in gold on Europe or the United States. There was a reaction from this extreme, and gradually exchange settled around 10,000 to 100. After the inauguration of Gen. Rafael Reyes as President it was found possible to maintain exchange within a point or two of these quotations, and the paper pesos or dollars acquired something like stability on the basis of a $100 note being worth $1 in gold.

Numerous incidents showed how the note issues had affected individuals, and many people were ruined who had made contracts when the notes were substantially at par without specifying the nature of the payment. Some speculators made money out of the general financial chaos, but very few of them kept it. In the period of fluctuations, as recently as 1903, the banks charged 4 to 6 per cent monthly interest for discounts to customers whose credit was as sound as could be expected when the conditions were so bad. Some of the departments which had granted franchises for the liquor and other monopolies on the paper basis found themselves almost without income.

PLANS FOR CONVERSION.

Recognizing the imperative necessity of restoring confidence by means of the gold basis, and with the tacit agreement of the public that the paper notes had lost 99 per cent of their face value, the Executive and the National Assembly cooperated in providing a plan of conversion. By legislative decree of March, 1905, the billetes or paper notes were declared to be the debt of the nation, and at the same time the principal cause of the unsettled condition

of the country, and since urgent necessity existed for converting the paper issues into metallic money the legal provisions were made. The monetary unit was declared to be the peso billete of the Banco Nacional, and the gold peso of 100 centavos being 1.672 grams, 0.900 fine. As a conversion fund the proceeds of the emerald mines, the pearl fisheries, the port dues, and certain export duties to be established were set aside. Authority was also granted for coining silver 0.835 fine, the Government to fix the respective equivalencies. By subsequent legislation 25 per cent of the net returns from the new imposts on liquors, hides, and tobacco were to be employed in 1906 and 50 per cent in 1907 for the conversion fund The Banco Central was the agency selected for carrying out these measures.

OLD PAPER ISSUES REPLACED.

In the financial legislation provision was made for calling in the outstanding paper money and replacing it by new notes, which are printed in England and which are known as the "English issue." By this measure it was hoped not only to provide new and clean notes in place of the soiled money, but also to get rid of the counterfeit issues which were known to be in circulation. Means were taken to determine these and confiscate them when presented. The original provision was that all the old notes should be presented by April, 1907, for reissue, and if not offered by that date they were to be outlawed and lose their value. Subsequently the time was extended to December 31, 1907. Up to March, 1907, $554,421,000 of the old notes had been burned and replaced by the new issue. In this financial rehabilitation the Banco Central availed itself of its privilege of issuing gold notes against its gold reserve, but public confidence has not yet been established to the degree that this process can be carried on satisfactorily. Holders of the notes generally present them without delay, in order to secure the gold, and so long as such withdrawals continue the issue of gold notes can hardly serve the purpose intended. Some confusion in exchange was caused by basing this bank issue on the English pound sterling, whereas commercial and financial transactions are largely on the basis of the American gold dollar, and a $5 note would have been more convenient.

In the legislation arrangements were made for the issue of nickels to the amount of $200,000 gold, to provide small change, all the existing money being paper, even down to the 1 peso, or 1 cent. These nickels are in circulation and serve a public convenience, the 1-cent coin being designated as 1 peso, or dollar, and the 5-cent coin as 5 pesos, or 5 dollars.

In the general scheme of financial rehabilitation the Government and the National Assembly also provided for the establishment of

mortgage loan banks, but the agricultural conditions have not yet reached the point where these banks are being established rapidly.

STRENGTHENING FOREIGN CREDIT.

Though the National Assembly took the one course by which a gold conversion fund can be obtained—that of setting aside specific revenues to be applied to it—the Government up to this time has not been able to spare these revenues, and they have not been so applied; but the declaration has been made that their diversion is only temporary, and when the industrial and financial conditions improve so that the revenues can be spared, as is likely under the policies of the present administration, the conversion fund will be applied and maintained. In the meantime Colombia is doing business with hardly more than $8,000,000 of actual circulating medium, the ratio of 100 to 1 being fairly well observed with regard to the $800,000,000 of the paper issues in circulation. This is less than $2 per capita in gold.

In connection with the financial measures of the Government, real progress was made in strengthening the foreign credit. It was recognized that foreign citizens and subjects who had suffered financial losses growing out of the civil war would have to be satisfied, and such claims, to the amount of $2,100,000 gold, were adjudicated, admitted, and provision made for their payment. A further measure of very great importance was the arrangement with the holders of the foreign debt to meet the interest, in arrears since 1896, and also to lay the basis for the payment of the principal. This arrangement was under what was known as the Holguin-Averbury contract, which was made by the authorized representative of the Government with the foreign bondholders in London in April, 1905. Under its provisions 15 per cent of the import duties are set aside to meet the deferred and current interest of the foreign debt and warrants are issued against the customs receipts. This action has done much to strengthen Colombia's credit abroad and already has been effective in securing the investment of new foreign capital.

COLOMBIA'S POLICIES.

In the beginning of this report mention was made of the policies of the Colombian Government under the presidency of Gen. Rafael Reyes. Their scope has been shown in the detailed discussion of the transportation projects and of the economic and fiscal measures. It is, however, desirable to review briefly the circumstances in which the administration policies were entered on, in order to judge of future probabilities in the light of present achievements. After the separation of Panama, and with the disposition of other departments to separate themselves from the central government at Bogota,

the political condition of Colombia was recognized as being most critical. The electoral contest for President was very close, but the majority vote was given to General Reyes. He was inaugurated in August, 1904, under the most distressing agricultural and commercial depression that could be conceived—the signs of recovery from the destructive civil war not yet being apparent. In his inaugural message he expressed faith that the country had reached the extreme point of its misfortunes, and that the upward epoch in prosperity and growth was beginning.

VARIOUS REFORMS SECURED.

Immediate events did not seem to bear out this hope. One economic crisis followed another, while financial panics supervened with distressing frequency. Nevertheless the administration had a programme which was set forth in detail and which was rigorously adhered to. Its leading features were industrial rather than political, and they also included various administrative reforms. This programme was occasionally interrupted through turmoil and conspiracies, so that at one time two of the departments were under martial law. The administrative measures were opposed and hampered without reason by the reactionary faction which was in opposition to President Reyes. Gradually, however, order was evolved. The Presidential term was lengthened to cover a period of ten years, and various amendments were made to the constitution of 1885 which gave the central government more power than was provided in that instrument.

Among these changes in the constitution was one abolishing the office of vice-president, which always had been a fruitful source of intrigue. In the political sense a most important action was the redivision of the departments and the creation of new ones out of the territory of the old ones. Bogota, the capital, was made a federal district, like Washington, with the exception that its inhabitants have a franchise and are represented in the National Assembly. The creation of the new departments broke up many cliques or coteries which were hampering the new policies and destroyed some hostile combinations. It was declared to be in harmony with the newer conditions of the country, and apparently it met with a large measure of popular support, for the opposition gradually disappeared, and it is now admitted that this legislation has helped to insure stability. The governors of the departments are appointed by the President. All the political elements were invited to share in the government, and most of the leaders cooperated.

PROGRESS IN PUBLIC INSTRUCTION.

Under the administration some progress has been made in the branch of public instruction, and especially in manual training and similar schooling, as well as in agricultural teaching. The public works policy has been pretty fully described in what has been said regarding transportation. The policy of foreign relations is apparent in the advanced standing which Colombia is now securing, and its climax is expected to be the closer intercourse with the United States and the establishment of diplomatic relations with Panama. This outline of what has been done gives the best indication of what may be done by President Reyes during the remainder of his term. The crowning fact of all is that the administration maintains peace, and under peace industrial and agricultural development are possible and an enlarged commerce assured.

CONCLUSION.

It is apparent from the analysis of Colombia's productive resources that the foreign commerce will always be on the substantial basis of exchanging tropical products for the products of the Temperate Zone, both manufactured and natural. This is what gives the foundation for a permanent trade. I have set forth very fully the backward industrial condition of the country, because this makes it the more promising field for the future. If Colombia had enjoyed a century of peace, and her natural resources had been continuously developed, there would to-day be a large market, but it would not be of the same character as the one that is in prospect. The short periods of tranquillity which the country has enjoyed in the past are an earnest of the future possibilities under a government that insures peace. The rewards for the investments of capital and for commercial venture will be in proportion to the existing difficulties, particularly in the extension of the transportation system and the improvements in the means of communication.

The United States sympathizes with the aspirations of Colombia for the internal peace and administrative measures which assure the development of her resources. It will always be a buyer of Colombian products, and it should share in the Colombian purchases in a larger measure than at present. Its geographical nearness is so marked, and the facilities for exchanging products are so easily turned to account, that these advantages should not be neglected. Especially is Colombia the natural market, through the Gulf of Mexico, for the output of the Mississippi Valley of both manufactured articles and breadstuffs. Railway material, farm machinery, cotton piece goods, and a long list of miscellaneous articles which I have indicated with some detail should supplement the cereal and packing-house products and the petroleum which heretofore have formed the bulk of the exports to this section of South America.

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60TH CONGRESS, 1st Session } SENATE { DOCUMENT No. 281

DEPARTMENT OF COMMERCE AND LABOR
BUREAU OF MANUFACTURES
JOHN M. CARSON, CHIEF

COTTON-SEED PRODUCTS IN FOREIGN COUNTRIES

REPRINT OF
SPECIAL CONSULAR REPORTS
VOL. XXXIX
WITH AN APPENDIX

WASHINGTON
GOVERNMENT PRINTING OFFICE
1908

IN THE SENATE OF THE UNITED STATES,
February 24, 1908.

Ordered, That there be printed for the use of the Senate, and be delivered to the Senate document room, 3,000 copies of a pamphlet issued by the Department of Commerce and Labor and entitled "Cotton-seed Products in Foreign Countries," and that the Secretary of Commerce and Labor be instructed to assemble and include in the publication reports from special agents and consular officers received since the said pamphlet was issued.

Attest:

CHARLES G. BENNETT,
Secretary.

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COTTON-SEED PRODUCTS IN FOREIGN COUNTRIES.

INSTRUCTIONS TO CONSULAR OFFICERS.

DEPARTMENT OF STATE,
Washington, January 7, 1907.

To the American consular officers.

GENTLEMEN: At the request of the Department of Commerce and Labor, you are instructed to prepare and transmit to this Department a report, in duplicate, on the use of American cotton-seed products in your district, which shall include replies to the following questions, viz:

1. Are cotton-seed oil and cotton-seed cake or meal used in the country in which you are stationed? If so, to what extent in pounds or gallons; in what shape; for what purposes; at what prices, and what are the aggregate quantity and value of the sales of each per year?

2. Are cotton-seed linters used? If so, for what purposes, and what is the aggregate quantity in pounds sold and for what value per year?

3. With what oils or greases does cotton-seed oil come in competition, such as olive, peanut, and other vegetable oils, edible tallow, butter, lard, etc.? What are the prices of each, and what are the aggregate annual quantity and value of the sales of each competing article?

4. With what articles does cotton-seed cake or meal come in competition, either as a feedstuff or as an ingredient of commercial fertilizers? What are the aggregate annual quantities and values of each such competing article?

5. Has there been an increase or decrease in the quantity imported of either of the cotton-seed products named in the country to which you are stationed, particularly in cotton oil? It has been pointed out that certain foreign countries whose people are large consumers of edible oils do not produce enough olive oil or any other kind of edible oil for their own uses, and that the shortage is made up by the importation of cotton oil or foreign olive oil. Give as full information relative to the consumption of edible oils and their production in the country in which you are stationed as can be obtained, stating whether or not there is a discrimination on the part of the Government against cotton-seed oil, and the cause of such discrimination if it exists.

6. Give any additional information that can be secured, and that may seem of value to the cotton-seed oil mills of the United States, regarding the use of each of the cotton-seed products above named.

The Department incloses, for your further guidance in making this report, copy of a letter addressed to the Chief of the Bureau of Manufactures, Department of Commerce and Labor, by Mr. F. H. Bailey, president of the Interstate Cotton-Seed Crushers' Association, of Paris, Tex., dated December 22, 1906.

I am, gentlemen, your obedient servant,

HUNTINGTON WILSON,
Third Assistant Secretary.

COTTON-SEED PRODUCTS IN FOREIGN COUNTRIES.

ITALY.

DISTRICT OF MILAN.

EXTENT TO WHICH MIXING IS PRACTICED—COMPETITIVE PRODUCTS—IMPORTS, CONSUMPTION, AND DISCRIMINATION.

Consul James E. Dunning, of Milan, furnishes a comprehensive report in which the relation of American cotton-seed oil to Italian olive oil is fully explained. The consul says that Italian olive oil for both wholesale and retail home trade contains from 5 to 50 per cent of cotton-seed oil, and that the latter comes in competition with the former as well as with edible tallow, butter, lard, oleomargarine, peanut and flaxseed oils. The opinion is expressed, however, that no "loaded" olive oil is exported to the United States. There has been a large increase in the quantity of cotton-seed oil imported into Italy. Spanish and French olive oils are also imported when the Italian oil crop falls short. It is declared on official authority that domestic Italian olive oil is diluted with American cotton-seed oil, and that this is done in the first instance to give the product a brilliant yellow color, and later by middlemen to pad the output. Consul Dunning's report, which was written under date of February 23, 1907, will be found valuable to those interested in the trade, and informative to the general reader. The report follows:

1. Are cotton-seed oil and cotton-seed cake or meal used in the country in which you are stationed? If so, to what extent in pounds or gallons; in what shape; for what purposes; at what prices, and what are the aggregate quantity and value of the sales per year?

Cotton-seed cake and meal are not used within the range of inquiry exercised by the Milan consulate, and the Government statistical tables on file in the office show no importations whatever.[a] Cotton-

[a] According to United States official statistics there was exported to Italy in the fiscal year ended June 30, 1906, 23,610 pounds of cotton-seed cake and meal, valued at $255.

seed oil, however, is an important article of import, of which the consulate records show the following movement:

Year.	Quantity.	Value.	Average per pound.
	Pounds.	*Dollars.*	*Cents.*
1904	9,417,100	536,988.72	5.7
1905	26,355,560	1,502,865.91	5.7
1906	9,256,308	388,764.72	4.2

It is easily observable, without extended analysis of the above table, that 1905 was a short year in the Italian olive orchards. The importation of cotton-seed oil made a strong advance. The United States cotton-seed oil market must have supplied practically all of the deficiency, since reference to the general import statistics for the year 1905 shows that the total importation of all fixed oils for that year was only about 100,000 pounds from all the Continental markets, France and Spain included. This point will be further discussed in the consideration of question 5.

HOW COTTON-SEED OIL IS USED.

Cotton-seed oil is used in Italy for two purposes, (1) for diluting olive oil, and (2) for sale as an edible substitute for olive oil at a price lower than that commanded by the native product. The consulate is unable to determine accurately the proportionate extent of these two uses. All discussions of this phase of the case must of necessity be general, the Italian oil industry being singularly lacking in definite statistical data, and such data as is obtainable, like practically all European commercial information, being subject to large errors in publication. Without encroaching upon the consideration demanded by the terms of question 5, the following propositions may be stated:

(*a*) In 1905, which was a year of unusual demand for foreign assistance to pad the short Italian output of olive oil, the importations of cotton-seed oil amounted to about 10 per cent of the total home consumption of olive oil and to about 6 per cent of the total amount of olive oil produced, consumed, and exported. In 1906, an average year for foreign importations and for the Italian olive crop, the purchases of cotton-seed oil amounted to about 3½ per cent of the total Italian home consumption of olive oil and about 5 per cent of the total amount of Italian olive oil produced, consumed, and exported, this last total amount including all Spanish and French olive oil imported o Italy to be mixed with native oil and exported out of Italy there-
. Not all of this importation of cotton-seed oil was used for the dilut ı of olive oil, because there is in Italy a large consumption of t ined olive oil. Thousands of peasants maintain a few tre ev . tar north as the Italian lakes, and press the olives with t r : ng the oil for cooking and the residue for feeding to ı ' tıe. Large quantities of this unrefined product (olia cattiva) ı : burning in cheap lamps. Some of it is used in lubricat- ı :y. A large amount is consumed in cooking among the ٧ı the south, and indeed throughout the peninsula.

The proportionate quantity of olive oil so consumed is unknown; but it is relatively large, on account of the habit of all Italians south of the Apennines of cooking everything in a liberal bath of oil.

LOWER GRADES OF OLIVE OIL.

There is a middle grade of olive oil, sold in the principal markets for kitchen consumption. Above that is the first grade for the top domestic market and the best export trade. The consulate has no reason for supposing that the "loading" of olive oil with cotton-seed oil is confined to the export grade, or even that that process is much in vogue in the preparation of that quality. In the absence of proof either way the consulate would infer, and as an inference only, that most of the "loading" takes place in the preparation of the middle-grade olive oil, which is largely for European consumption. The matter will be again referred to in the more extended discussion allowed by the terms of question 5.

(*b*) Cotton-seed oil as such is used in its second application in the Italian market for sale in bottles or in bulk for cooking purposes. It is in some favor among the poorer classes of the population on account of its wholesome appearance, its superiority to the low grades of olive oil, and its low price, which runs from 4½ to 6 cents per pound, as against 6½ to 9⅜ cents per pound for olive oil at wholesale; while a good grade of cotton-seed oil can be bought in the Milan shops at retail, and is so bought in large daily sales for kitchen use by the poorer classes at 11 cents per pound retail.

2. Cotton-seed linters are not used within the range of the Milan consulate.

COMPETING PRODUCTS.

3. With what oils or greases does cotton oil come in competition, such as olive, peanut, and other vegetable oils, edible tallow, butter, lard, etc.? What are the prices of each, and what are the aggregate annual quantities and value of the sales of each competing article?

Cotton-seed oil comes in competition in Italy with olive oil, flax-seed oil (i. e., linseed), an apparently insignificant quantity of peanut oil, fish oil, butter, oleomargarine, tallow and lard, oil of sesame, and a variety of fixed oils and fats. The market in these lines is uncertain and fluctuating, and the Milan consulate has not enjoyed direct touch with some of the important centers of the various trades involved. Careful study of such evidence as it has been able to collect has, however, led to a table of average quantities and values intended to answer the explicit inquiries stated in question 3. It should be understood that the table is the result of an effort to establish a mean estimate of the volume of the trade without reference to any one year. In reaching the averages both "lean" and "fat" years have been eliminated by reduction to the common level which the consulate has sought to establish. The prices are average Milan prices, and in every case in which there was some minor question as to mean, year-around scale, the high rather than the low price has been stated, in order that American exporters and others may not be deceived by too pleasant a prospect. The amounts are slightly approximated, in order to present the easier review which can be given to round numbers.

The Italian market, therefore, may be stated thus as related to oils, fats, and greases of all kinds, prices being wholesale, f. o. b. Milan:

AVERAGE ANNUAL QUANTITY AND VALUE OF OILS AND GREASES SOLD IN ITALY.

Articles.	Price per pound.	Quantity.	Value.
	Cents.	*Pounds.*	*Dollars.*
Olive oil	8½	312,650,000	26,054,166
Butter	21	75,152,000	15,781,920
Lard	12½	273,570,000	38,299,800
Oleomargarine	10	3,520,000	352,000
Tallow	12	31,500,000	3,780,000
Pork fat	10½	2,475,000	330,000
Other fats[a]	5½	54,400,000	2,992,000
Oleic acid	4½	3,509,000	168,000
Stearic acid	8	1,090,000	87,700
Acid fats[b]	5½	440,000	22,800
Cocoa butter and oil	9½ to 14	2,191,900	260,836
Linseed oil	6 to 7	29,641,940	1,926,726
Sesame oil	9½	6,358,000	604,010
Palm oil[c]	7½	.....	.....
Rape-seed oil[d]	7½	.....	.....
Fish oil	6	3,674,000	220,440
Total	.....	800,162,840	90,880,398
Cotton-seed oil[e]	4½	9,256,303	388,765

[a] Animal fats.
[b] Acid fats solidifying above 40° and at less than 49° F.
[c] Included with cocoa.
[d] Included with linseed.
[e] In 1906, an average year.

TREND OF THE TRADE.

The foregoing table is made purposely general to illustrate the trend of the entire trade in Italy. A trifle less than one-ninth of the sales indicated are supplied by imports. To show the average relation between home production, exports, and imports, as a basis for home sales, the following table will be found to contain the approximate figures, made up from official estimates compiled by the consulate with all possible care.[a]

RELATION OF HOME PRODUCTION TO IMPORTS AND EXPORTS OF OILS AND GREASES.

Articles.	Home production.	Imports.	Exports.
	Pounds.	*Pounds.*	*Pounds.*
Olive oil	440,000,000	24,500,000	151,850,000
Butter	88,000,000	352,000	13,200,000
Lard	264,000,000	9,680,000	110,000
Oleomargarine	3,520,000	.....	.....
Tallow	31,500,000	.....	.....
Pork fat	.....	2,640,000	165,000
Other fats	.....	55,000,000	600,000
Oleic acid	.....	5,500,000	2,000,000
Stearic acid	.....	2,200,000	110,000
Acid fats	.....	440,000	.....
Cocoa butter and oil	.....	2,201,800	9,900
Linseed oil	[a] 29,350,000	440,000	110,000
Sesame oil	.....	.....	.....
Palm oil	.....	.....	.....
Rape-seed oil	.....	.....	.....
Fish oil	.....	3,740,000	66,000

[a] Including amount pressed from imported seeds.

Some latitude must be allowed in the presentation of these figures, on account of the total lack of accurate official statistics. They are, however, set down with the concurrence of opinions obtained from supposedly competent authorities in Milan.

Discussing the terms of the foregoing table, it may be stated that when the Italian olive crop is short, the olive-oil market recruits itself for the most part from Spain, with France as second choice. Other countries supplying olive oil to Italy are Tunis, Turkey, Greece, and Austria-Hungary, in the order named. The United States is the chief source of supply of other fixed oils, other countries drawn from being Austria, Great Britain, and France; but the combined importations of other fixed oils from all other countries is less than one-fiftieth of the importation from the United States, American cotton-oil shipments explaining the great difference.

SOURCES OF SUPPLY.

Stearic acid is imported from Holland, France, Germany, Belgium, Austria-Hungary, and Great Britain. Fats of sundry kinds are imported from the United States, South America, Great Britain, France, Belgium, Austria-Hungary, India, and Australia. Seventy-six hundred tons of fats were imported from Argentina alone in 1906—15,200,000 pounds. The average importations of fats of all kinds (excluding acid fats) may be studied in the following table:

Whence imported.	1902.	1903.	1904.	1905.	1906.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*
North America	1,046	3,633	5,747	6,640	6,306
South America	10,238	6,258	9,244	10,437	7,618
Great Britain	3,010	3,910	5,830	6,583	7,350
France	2,205	2,350	3,214	2,396	2,800
Belgium	717	108	236	183	450
Austria	255	241	154	129	150
India	536	58	30	231	86
Australia	.....	249	.....	114	157
Other countries	874	844	841	632	505

SEED CAKE OR MEAL.

4. With what articles does cotton-seed cake or meal come in competition, either as a feedstuff or as an ingredient of commercial fertilizers? What are the aggregate annual quantities and values of each such competing article?

Cotton-seed cake or meal would come in competition, in Italy, with flaxseed, rape seed, and olive waste, principally as a feedstuff, and very little as a fertilizer. The use of this sort of stock in commercial fertilizers in Italy is insignificant, and the trend is not in that direction. As feed for animals, cakes of flaxseed and of rape seed are extensively used. The use of olive waste has been going on for many years, and efforts are now on foot to develop it on a scientific basis in the Department of Agriculture. Italy has four crops of hay a year, so that hay for feed is abundant at all seasons.

The annual consumption of all kinds of seed cakes in Italy is estimated by the Ministry of Agriculture, Industry, and Commerce[a] at 110,000,000 pounds annually, valued at $1,200,000, or a trifle over 1 cent per pound. Italian statisticians do not at present interest themselves in the details of this business, so that it is impossible to present in accurate tabular form the itemized annual quantities and

[a] Annali d'Agricoltura, Rome, 1905.

values of each competing article concerning which information is sought by the cotton-oil mills of the United States. There is a sizeable export out of Italy of oil seeds and cakes, amounting at present to about one thirty-fifth of the importation thereof. The slant of the trade, however, may be observed in the following tabular statement, compiled by the consulate after a study of the records filed in the Royal Italian Institute of Agriculture at Milan, with a view to determining the flow of imports of this class into the country. The figures represent averages of imports of oleous seeds of all varieties.

IMPORTS OF OLEOUS SEEDS INTO ITALY: 1881–1906.

Year.	Imports.	Value.	Value per pound.
	Pounds.	*Dollars.*	*Cents.*
1881–1885	[a] 77,597,520	[b]	[b]
1886–1890	[a] 105,342,820	[b]	[b]
1891–1895	[a] 109,739,740	[b]	[b]
1896–1900	[a] 110,109,780	[b]	[b]
1901	135,595,240	4,093,641	3
1902	133,028,500	4,011,314	3
1903	165,449,800	4,619,634	2.8
1904	163,925,300	4,789,931	2.9
1905	142,092,280	4,154,269	2.9
1906	[c] 125,101,760	[c] 3,753,052	3

[a] General average for the five years. [b] Value not given. [c] Slightly approximated.

FEEDS AND FERTILIZERS.

The foregoing table is an interesting illustration of the awakening of Italy's agricultural interests a quarter century ago to the important part to be played in the country's welfare by a proper study of feeds and fertilizers. And the decrease in imports of oleous seeds for feed stock which appears with the year 1904 is the initial sign that agricultural economy was beginning to teach the value of waste materials. Imports fell off because they were needed in a lesser degree; and this movement is still in progress as more productive methods are devised for the application of otherwise useless residue.

To break up these figures still further into such details regarding the use of oleous seeds for feed stuff in Italy as the consulate has been able to obtain, the following table, compiled from the trade summaries filed in the consulate itself, is of direct bearing on the terms of question 4 as to imports of oleous seeds:

Seeds.	1903.	1904.	1905.	1906.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*
Flax and rape	72,517,720	95,196,420	78,990,840	76,767,760
Sesame and arachide	55,344,740	40,606,720	39,440,280	25,432,000
Castor	26,128,520	26,927,120	22,897,600	22,198,000
Others	1,458,820	1,195,046	972,180	704,000
Total	155,449,800	163,925,306	142,300,900	125,101,760

Flaxseed is imported in great quantities from India, whence one Milan company brought 8,140,000 pounds during 1906; and India likewise furnishes nearly all the seeds of castor, sesame, and arachide. Russia and Argentina, however, both ship good quantities of flaxseed

into Italy, and the balance of the supply comes from Turkey, Egypt, China, and France. The home production of flax is about 41,800,000 pounds annually.

CONSUMPTION OF OLEOUS SEEDS.

It is impossible to determine with even approximate accuracy the volume of the trade in oilseed cakes used for feed stuff. The exports from exceed the imports into Italy; and there is no way of forming any intelligent estimate of the home consumption, such as can be reduced to a tabulated summary. It is true, however, that a relatively small part of the oleous seeds used in Italy is made into meal and cakes for direct feed for live stock, nearly the entire importation being used in the extraction of oil. The residue of the pressing process is available as feed stuff, and using the quantity of such residue as a base, it is proper to make certain deductions of a nature entitled to reasonable respect.

Reference to the records of the Institute of Agriculture at Milan indicates that in Italy it is fixed that 1 quintal, or 220 pounds, of oleous seeds will render from 48 to 55 pounds of oil, and allowing for loss of impure and ultimate waste matter, 154 pounds of substance is available for cakes—that is, Italian experience has justified the expectation of the following result from the pressing of oleous seeds:

	Pounds.
Amount of seed	1.00
Result in oil	.25
Result in feed	.70
Result in waste	.05
	1.00

By a study of the production, imports, and exports of oleous seeds it appears that a net quantity of 164,000,000 pounds thereof was pressed in Italy in the year 1906. Using the above proportion as a basis, the home consumption of oilseed material available for cakes and meal in Italy in 1906 works out thus:

	Pounds.
Net quantity of seed pressed	[a] 164,000,000
Proportion of feed material	.70
Total quantity resulting	114,800,000
Total quantity exported	4,800,000
Net quantity for home use	110,000,000

These figures are essentially approximate, and they are presented with all due hesitation on that account. They are, however, computed on the system used by the highest Italian agricultural authorities, and may be accepted on that ground with a fair amount of confidence. Naturally, as the critical reader has probably observed, the consulate has made no separate allowance for the product of oleous seeds raised in Italy itself. The domestic supply, however, is moderate at present. It is increasing slowly, but some day will have to be reckoned with. Taking it all together, at its utmost, it may be roughly stated at a total of 39,000,000 pounds annually, this amount

[a] Production plus imports.

figuring in reaching the original estimate of 110,000,000 pounds as the approximate amount of seed cakes and meal used for feed stuff in Italy annually.

BRAN AS FEED STUFF.

No account has been taken of bran, which, in sundry mixtures, is much used in Italy as a feed stuff, though, as a matter of course, not in the class with oil-seed cakes and meal. Bran is, however, much more important as a feed stuff in Italy than cakes are, and is held to contain 14 per cent of albuminoids and from 3 to 5 per cent of fats. Great frauds have been practiced with various mixtures of bran, it having been a habit in some provinces to mix with it old bread refuse and corn husks, much to the damage of the stock to which it was fed. Bran is well thought of as a hog feed, but recent researches have developed some disastrous results among swine stock on account of a residuum of fine sand which had been put into the mixture.

The residuum of the rice trade is also put to use as a feed stuff, in a small quantity. Statistics of the use of these two articles are not available.

ITALIAN CROP INADEQUATE.

5. Has there been an increase or decrease in the quantity imported of either of the cotton-seed products named, * * * particularly in cotton oil?

There has been a general increase in the quantity of cotton-seed oil imported into Italy from the United States, and the prospect for further development in the trade is excellent. There is no trade worth tabulating in seed cakes and meal, and at Milan the outlook for them does not appear particularly promising. This would all depend upon comparative prices, however, and the question is not one which can be intelligently answered (that is, this phase of the general question) outside the United States.

Italy is peculiarly a country "whose people are large consumers of edible oils," who do "not produce enough olive oil or any other kind of edible oil for their own uses," and "the shortage is made up by the importation of cotton oil or foreign olive oil." It is obvious that a proper answer to this query will throw open the entire case of adulteration and mixture.

Italy does not fully supply herself with edible oils. Even in good seasons for the olive orchards, like 1906, considerable purchases of olive oil are made in Spain and France. Linseed oil is purchased in the usual markets. But the best source of supply for Italy is the United States. Cotton-seed oil is the principal foreign edible oil used in piecing out the inadequate Italian product. In this way it has a perfectly legitimate use. It is sold in the markets, quoted in the trade journals, and recognized generally as a wholesome substitute for olive oil in short seasons, and a useful low-price article for those classes of the population which live on a few pennies a day. The American cotton-seed oil of average quality undersells and is vastly superior to the low grades of olive oil at the tag end of the Italian crop.

Naturally, in particularly short years like 1905, the Italian market draws abnormally upon the American supply of cotton-seed oil. The

increase is explained not by the attempt of the Italian shippers to adulterate their export olive oil with cotton-seed oil, but by the demand of the home Italian market for a good edible oil at a low price. That demand the American cotton-seed oil answers with special satisfaction. The demand is gradually growing. It is right to expect that the trade will increase in all average years, and that in "lean" years for the Italian olive crop the draft upon the American cotton-oil market will be heavy. A glance at the table on page 14 will afford the best possible illustration of this phase of the case. Short crops are bound to occur in Italy every few years, while the prospect for the general normal trade in cotton-seed oil is promising in the extreme.

IMPORTATIONS IN DETAIL.

A detailed examination of the importations of edible oils in an average cycle of Italian years discloses the following proof of the foregoing argument, which may be thus tabulated, showing importations of edible oils in pounds:

Oil.	1903.	1904.	1905.	1906.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*
Olive	34,501,060	27,666,540	30,878,980	5,500,000
Cotton	8,079,280	9,417,100	26,355,560	9,256,000
Flax	540,760	679,800	479,580	470,000
Others	270,820	159,500	208,780	200,200
Total	43,391,980	37,922,940	57,922,900	15,426,200

This is the most striking evidence in the possession of the consulate at Milan to show the reliance placed by the Italian market on American cotton-seed oil as a substitute for the native olive product. The argument given point thereby is rendered of more practical weight in the consideration of the second aspect of the question under discussion—that is, the method by which such substitution is effected.

SUBSTITUTION AND ADULTERATION.

The adulteration of Italian olive oil by the use of American cotton-seed oil, and the substitution, both open and otherwise, of cotton oil for the native product in short years and at other times, is unquestionably a fact. In the opinion of the Milan consulate this adulteration and this substitution do not extend to the export trade. In other words, all the evidence collected on this point by the consulate, and its volume is not inconsiderable, indicates that Italian olive oil exported to the United States is entirely free from adulteration and that it is the true and genuine product it appears to be. Every variety of independent inquiry instituted by the consulate—all without the knowledge of the exporters and manufacturers of the olive oil—leads to the irresistible conclusion that the Italian oil exporters may very frankly be freed from every insinuation and suspicion on this part of their trade. The adulteration and substitution are done in Italy for the domestic market.

While the consulate is unwilling to say that all Italian olive oil used in the home market is diluted with cotton-seed oil—there being no sort of actual proof thereof—it is true that careful tests made by oil manufacturers in Italy have shown that 5 per cent of cotton oil can be injected into olive oil without affecting the color of the latter or altering the taste appreciably. It is held in an authoritative quarter to which the consulate has had access that olive oil loaded with 5 per cent of cotton adulteration will not respond to the tests for detecting the presence of the adulterant. It seems apparent that a very large quantity of the best Italian olive oil sold in the home markets contains this quantity of cotton-seed oil. Indeed, it is regarded as true in the olive-oil trade that American cotton oil is the best aid to rendering ordinary olive oil clear in color—that is, it is a favored process among some manufacturers to take dark olive oil and add cotton oil until the mixture produces the brilliant yellow color demanded by the "fancy" trade.

It has been further demonstrated in the Milan market that olive oil loaded with from 30 to 40 per cent of cotton oil maintains its color and substance, even when left standing, and that the adulteration is not visible to the ordinary eye. Whether or not the possession of this interesting knowledge is taken advantage of by the Italian manufacturers and middlemen, the consulate leaves the American reader to infer.

COTTON-SEED PREFERRED TO LOW-GRADE OLIVE OIL.

It is regarded as improper in the first-class trade to load olive oil with more than 40 or 50 per cent of cotton oil, as when that proportion is reached the adulteration is visible to the eye.

It is the habit, according to the repeated statements of Milan oil handlers, to place cotton oil in bulk in the smaller cities and towns and sell it, either straight or slightly mixed with second-grade olive oil, as olive oil. It must be remembered that a great deal of second-rate olive oil (*olia cattiva*) is sold in Italy to the lesser trade. American cotton oil is so greatly superior in appearance and wholesome flavor to this inferior stock, and its price is so attractive, that substitution is rendered specially easy. Indeed, it seems probable that by gradual stages the cotton oil will be sold in increasing quantities as such, in preference to the lower grades of olive oil. The market in this respect is good, and can be developed.

PURE OIL SHIPPED TO AMERICA.

The consulate is aware that it has left open a quite decisive question, which might be stated in these terms: If Italian export olive oil can be loaded with 5 per cent of cotton oil without fear of detection by test, what proof can be advanced to sustain the consulate's opinion that no Italian oil so loaded is shipped to the United States? It must be admitted that there is no proof now at hand, and that to support its opinion the consulate would be obliged to enter into a long and considerably aimless discussion of inferences not valuable to the purposes of this report. One of the less unstable reasons set up by

the consulate is the fact that even at its utmost, the supply of American cotton-seed oil is not now sufficient to furnish such an immense quantity of adulterant as would be called for if the Italian shippers were carrying their loaded stock into the export trade. That is, at the present stage of the trade it would appear to be true that home adulteration is carried on to an extent sufficient to take up all the cotton-seed oil not required for straight sales as such.

MIDDLEMEN AND RETAIL TRADE.

The foregoing sections of this report have, as a matter of course, dealt with prices as of the general wholesale markets for quantities in bulk. As affording light on the retail trade as that trade is directed by the middlemen, the following list of prices will be of interest, because it is supplied by a typical Milan dealer to a private inquirer and presents the middleman's price list for oils:

PRICES OF OILS ON MILAN MARKET.

Kinds of oil.	Per pound.	Per 220 pounds.
	Cents.	*Dollars.*
Cotton seed	8	17.60
Olive:		
Extra	14½	32.00
Fine	12½	27.86
Ordinary	11½	24.98
Sesame:		
Extra	11¾	25.96
Fine	11½	24.98
Ordinary	10½	23.46
Flax, edible	8	17.60
Rape, edible	10	22.00

These prices are for the oils in quintal lots and not less. Oils of these respective qualities sell at retail by the kilogram (2.2 pounds) at from 18 cents per pound for extra olive oil to 11 to 12¾ cents per pound for cotton oil.

The consumption of edible oils and their production in Italy, suggested as a part of question 5, is fully answered in the foregoing sections of the report, and with particular detail in the tables on pages 14 and 16.

NO DISCRIMINATION IN CUSTOMS RATES.

There is no discrimination on the part of the Italian Government against American cotton-seed oil. In fact, the Italian Government is committed to special consideration for such importations. The Italian general tariff provides for a duty of 24 lire, about $4.63, per quintal (220 pounds) of cotton oil, plus 14 lire, or about $2.70, per quintal, which is a manufacturing tax applicable alike to imported and domestic oil; the total general Italian tariff duty on cotton-oil importations is thus about $7.33 per quintal, or about 3¼ cents per pound. Under the terms of Article II, however, of the treaty of reciprocity with Italy, dated Washington, February 8, 1900, the United States secured from the Government of Italy an agreement that, on

account of certain considerations, the Italian duty on cotton-seed oil from the United States should not exceed 21.50 lire per quintal, about $4.15, which is a trifle less than 2 cents per pound. This rate (to which is added the manufacturing tax of 14 lire per quintal) is allowed under a series of treaties to every country excepting Spain, and is governed by the need of cotton oil during years when the Italian crop of olives is short.

CAKES AND MEAL.

6. Give any additional information * * * that may seem of value to the cotton-seed oil mills of the United States regarding the use of each of the cotton-seed products named.

Two propositions are apparent from a review of the situation in Italy as observed from Milan: (1) The trade in cakes and meal can be developed to the advantage of the American exporters; and (2) much can be done under the tariff as it now stands to increase the sales of American cotton oil as such in Italy—that is, not as an imitation olive oil or as an adulterant therefor.

(1) The Italian agricultural interests are fully alive to the importance of artificial feedstuffs, and are doing everything in their power to encourage their use. The Government has placed its interest on record. "There is no reason to doubt," says a recent official publication, "that the consumption of cakes and meal of oleous seeds and of all concentrated auxiliary foods for live stock will greatly increase in Italy."[a]

Great stress is laid by the Government, and by private persons interested in the matter, on the need of some such feedstuffs, the quality of which can be absolutely assured. It is recognized that here, as in the case of commercial fertilizers, there are unusual opportunities for fraud. Probably that knowledge has contributed something definite to the slow progress of these articles in Italy. At present there is manifest a considerable distrust of imported cakes on account of the suspicion that they are likely to contain base matter dangerous to the cattle eating them.

The best Italian authority declares that it does not encourage the use of seed cakes and such materials unless they come from the pressing of seeds which had an original degree of purity of 95 per cent and were carefully cleaned before being submitted to process; which contained no toxic substances; which contained not more than 2 per cent of earthy substances, and which were in good condition, well dried, and showing no signs of mold.

KIND OF CAKES USED.

Cakes now used in Italy are of two classes—made either of the direct residue of oil extraction mixed with a small quantity of seeds, or of other mixtures of these residual masses mixed specially as feedstuffs under more or less exact and scientific conditions. The more complex mixtures are of course those which offer the greatest opportunity for adulteration with dead-waste matter. So far, therefore, the Italian authorities appear to have favored legislation which would demand a complete guaranty from dealers as to the character

[a] Annali d'Agricoltura, 1905, p. 85.

and condition of the oleous seeds from the residue of which the cakes were made. Undoubtedly such legislation may be expected in the form of laws which will demand the frankest kind of a declaration to show to the buyer the true value of the feed he purchases; in other words, a pure-feed law. Cakes of ground turf mixed with cheap molasses are not entirely unknown in Italy.

VALUE AS FEEDSTUFF.

"The value as a feedstuff of a seed cake," says one of the short reports issued from the Ministry of Agriculture, Industry, and Commerce on the subject, "when it is in good condition of preservation and contains no poisonous substances, depends on three essential constituents: The albuminoids or proteids, the fats or oils, and the carbohydrates, especially in the form of sugar, starch, and digestible cellulose. In different feeds the same constituents are not equally digestible. Thus in cakes about 75 per cent is digestible, while only from 50 to 70 per cent can be so considered in green feed. In cakes and in meal of the oleous seeds the alimentary value depends upon the proportions of the albuminoids and the oils contained therein. Thus, a satisfactory cake of linseed should contain not less than 27 per cent of albuminoid, together with a minimum of 10 per cent of oils. A cake containing less than that proportion of each could not command a market price or afford the necessary guaranties of quality."

The consulate quotes this report to show the likelihood that a campaign of introduction undertaken on behalf of American cakes and meal would meet a strict chemical analysis at the start. In fact, the most competent Italian authorities are strongly urging the passage of laws on this point patterned on the Belgian legislation of 1896.

MOST FAVORED SEED CAKES.

Cotton-seed cakes and meal are not under direct suspicion, which has so far been directed entirely against linseed stock. "In fact," says an official who has gone deep into the question, and whose work has been carefully reviewed by the consulate in the preparation of this report, "the manufacture of artificial linseed cakes, containing an infinitesimal portion of true seed residue, has been practiced on a large scale." And it is reported at the experiment station in Milan that in several cases under test so-called linseed cakes were found to contain a considerable quantity of raisin seed and grape dregs, evidently the junk of Italian factories.

The most favored seedcakes in Italy appear to be those made from the linseed imported from Bombay. However, in a somewhat extended remark on the general demand for seedcakes as feed stuff in Italy an officer of the Ministry of Agriculture said not long ago: "Cotton-seed cakes, which have a particular yellow color, contain a very high percentage of albuminoids and do not offer themselves easily to adulteration."

QUALITY OF CAKES CRITICISED.

Some complaint has appeared at Milan from time to time in relation to small importations of cotton-seed cakes from Egypt and Bombay, and particularly that the latter were not sufficiently cleaned of

cotton fibers. Indian cakes are also criticised because they appear to be frequently in poor condition, to be on the verge of mold, and to have been "braced" with borax as a preservative. Shipments of seedcakes from the United States have been criticised, as late as 1905, because they have frequently been found to contain fragments of metal thrown off by the pressing machinery of such proportions as to render the cakes fatal in the feeding of cattle. Another criticism of the American cotton-seed cakes is that certain toxic substances accumulate in the cotton fibers, which are not always well winnowed from the body of the cake, and that they are specially dangerous to young animals. In a word, the entire attitude of the Italian market toward American seedcakes is one of insistent demand that the stock offered for sale here be proved by every available test to be wholesome feed for cattle.

A NEW COMPETING ARTICLE.

A new feed stuff which will compete with American and other seedcakes, if its use can be made practical under the strict requirements of the Government experts, is the waste of the olive pressing. To determine the value of this waste material the most careful experiments have been carried on by Dr. Flaminio Bracci, director of the experiment station at Spolete. Previous efforts in the same direction were brought to a halt by the difficulty of eliminating the débris of the olive seed, which was dangerous for the feeding of cattle, and gave unpleasant results even when fed to swine. The amount of the material available, however, was singularly attractive from a pecuniary point of view, and Doctor Bracci began his studies with a determination to discover some way of effecting, as he himself is reported to have called it, "a boneless feed stuff." He believes that he has succeeded. "I have created," he said in a recent report to the Government, "a new industry, the importance of which is exactly proportioned to that of the Italian olive crop."[a]

According to Doctor Bracci's report, analysis gives the following result in an average quantity of tested olive waste:

	Per cent.
Fats	11.63 to 18
Gross protein	11.50 to 11.68
Nonazotes	22.41 to 41.38
Gross fiber	19.16 to 24.12
Digestible proteids	5.77

It is estimated that the total amount of olive waste available for reduction to feed stuff is 1,540,000,000 pounds annually, and that the rial can be profitably extracted from this immense mass of waste, itself is reckoned to have, prior to rendering for the market under the Bracci method, a theoretical value of a little less than 1 cent per pound. In other words, Doctor Bracci believes that there is in the olive waste of Italy $15,000,000 worth of good feed for stock. If it is true that more than 75,000,000 pounds of digestible proteid material can be profitably extracted from this immense mass of waste, Italy will be able to more than supply herself with her own feed stuff of this character. Comparisons on this line may be made by reference to the answer to question 4, page 15, of this report.

[a] Bulletin Mensuel de la Chambre de Commerce Française, Milan, December, 1906, p. 1103.

Doctor Bracci proposes to enrich the olive waste by mixing it, after reducing it to a pulp and rendering the digestible material, with meal of ground beans and of corn.

There are in the whole of Italy 18,732 oil-pressing works, using 17,016 horsepower and employing 72,463 people. The somewhat peculiar ratio of horsepower to number of factories is explained by the fact that many of the so-called "works" are small farm establishments where one or two are employed who do the pressing with their feet.

SALE OF COTTON OIL MAY BE EXTENDED.

Much can be done under the tariff as it now stands to increase the sales of American cotton oil as such in Italy; that is, not as an imitation olive oil or as an adulterant therefor. Prejudice would have to be overcome, but there is plenty of proof that cotton oil is already being consumed in immense quantities by people who do not know they are using diluted or substitute oil. There is, as a strong basis for further developing this trade, the existing demand for American cotton oil, which has become nearly indispensable to the Italian market. It will, unless prevented by legislation which is not now in prospect, always serve as an adulterant for olive oil. The consulate believes that its sales as a straight product, on its merits alone, can be largely increased by the use of intelligent and active methods. The Italian market is already familiar with advertising campaigns intended to exploit olive oil for cooking in place of butter and oleomargarine.

Large quantities of olive oil, and of linseed oil as well, are used in portions of Italy for burning in lamps, this grade selling at from 11½ to 13½ cents per pound, in quantities of 30 to 350 pounds. "For preserving the eyesight," says the catalogue of an enterprising Milan oil merchant who deals in this class of illuminant, "all the oculists warmly recommend the light given by olive oil to persons who write or work at night."

CULTIVATION OF COTTON.

It is of interest to note that Italian authorities are endeavoring to raise a cotton crop in the African colony of Eritrea, and that, though no great progress has been made as yet, the outlook is regarded as promising. Italian capital in South America is also interested largely in an effort to produce a cotton crop from which to supply the Milan mills. Good advances are reported, and a statement received at the consulate says that as many as 20,000 bales have been marketed. This is a hint of what may be expected in the future in this industry.

AVERAGE ANNUAL OUTPUT OF OLIVE OIL.

A supplemental report, dated April 9, received from Consul Dunning includes a tabular statement issued by the Italian authorities, showing olive-oil production in Italy for the past five years by provinces. There is a discrepancy between the Italian figures and those of the consul, the former placing the average annual production of olive oil for the past five years at 590,000,000 pounds, which

is 150,000,000 in excess of the quantity stated by the consul in the table printed on page 14. The following is taken from the official statement and shows the average annual quantity of olive oil produced for the five-year period ending with the calendar year 1906:

AVERAGE ANNUAL PRODUCTION OF OLIVE OIL, 1902–1906.

Province.	Quantity.	Province.	Quantity.
	Pounds.		*Pounds.*
Lombardy	1,014,200	Adriatic provinces	162,118,600
Venice	849,200	Mediterranean provinces	152,614,600
Liguria	28,541,100	Sicily	128,278,200
Emilia	858,000	Sardinia	12,817,200
Umbria	31,267,720		
Tuscany	46,285,200	Total	590,174,420
Latium	30,586,600		

ROME.

ADULTERATED OIL FOR SOUTH AMERICA.

Consul-General Hector de Castro, of Rome, confirms the statement of other consular officers that cotton-seed cake is neither manufactured in Italy nor imported from America. His report is dated March 16. It follows:

There is an annual importation of nut and other seed cakes amounting in the aggregate to 2,960 tons, valued at about $76,000, principally from Austria and France, which are used as fodder. These imports are about stationary and have not materially changed in the last few years. There is no duty on imported nut or seed cakes. Cotton-seed oil is imported to the extent of some 6,650 tons annually, valued at $863,000, of which 5,400 tons are from the United States. Of the 6,650 tons 4,300 remain in Italy and the rest is reexported as or mixed with olive oil, mostly to South America. As there is a duty of $41.49 per ton on cotton-seed oil, exclusive of octroi, the adulterating operations are carried on in the bonded warehouses. In addition to the custom-house duty, there is an octroi duty of $24 per ton on any vegetable oil and on fat entering Italian cities.

No cotton-seed oil linters are used in Italy and no imports thereof figure among the statistics of Italian imports.

PER CAPITA CONSUMPTION OF OLIVE OIL.

Cotton-seed oil would come in natural competition with olive oil, which is one of the most important products of Italy and of which the annual average production is about 217,000 tons. It is one of the principal articles of food. The annual average consumption per capita is figured at 6 quarts. The country produces enough for home consumption and may always draw in case of failure of crop the necessary amount from the neighboring countries—Spain, Greece, and the Mediterranean Islands. Italy imports on an average annually 21,000 tons of olive oil and exports some 40,000 tons. Olive oil sells at about $1.24 per gallon first quality and $1.10 per gallon second quality. This is the price in the cities and includes the octroi

tax. In the country and outside of the city boundaries the price would be $1.12 and 98 cents, respectively.

There are no available statistics showing the consumption of lard and butter. The first sells at from 12 to 14 cents per pound and the second at 22 cents per pound.

There appears to be no demand for cotton-seed cake or meal, and very little for other similar cakes or meals; it is therefore not a question of competition, but perhaps one of education. A market for cotton-seed cake or meal may therefore be created if the advantages of the article be established. The olive-oil cakes are generally used for fuel in the course of the manufacture of the oil itself, and also as fertilizers.

CUSTOMS DUTIES.

The duty on imported olive oil is $28.95 per ton, plus an octroi duty of $24 per ton if brought into the cities. On cotton oil the import duty is $41.49 per ton, exclusive of octroi. Besides this discrimination, there is the prejudice of the people against cotton-seed or any other vegetable oil in substitution for olive oil. It is not likely, therefore, that cotton-seed oil as such would find a ready market in Italy as an article of food so long as olive oil is plentiful.

The duty on oleous seeds ranges from $9.17 to $11.58 per ton; it would therefore seem more advantageous to import the seeds rather than the oils.

VENICE.

IMPORTATIONS REGULATED BY OLIVE CROP.

Consul Paul Nash writes, on February 19, that cotton-seed oil is imported into Venice in greatly varying quantities, according to the production of olive oil in Italy. The consul says:

In 1904–5 some 35,000 barrels were imported because of the scanty olive crop in this country, whereas in 1905–6 only about 7,000 barrels reached Venice direct. So far this season's importation amounts to nearly 11,000 barrels, and the prospects are that in spite of the high prices prevailing at present a fair amount of business will be done, the quantity and quality of last autumn's olive production being considerably below the average. A certain unrecorded quantity of cotton oil, both pure and already mixed with olive oil, reaches other parts of this district overland, and as a great part of the amount coming direct to this port goes out of the district it is impossible to estimate the local annual consumption with any degree of exactitude. Lack of statistics makes it equally impossible to state the consumption of any of the other edible oils, butter, lard, etc. The current prices for cotton oil as quoted in the newspapers range from 85 to 94 lires (1 lire = 19.3 cents) per metric quintal (220 pounds), including the usual estimate of 42 lires for duty and expenses. Calculating 1.1 lires per kilogram, this gives us a price of about 57 to 63 cents per gallon.

As far as I can learn there is no cotton-seed meal consumed in this district, but some experiments have been made with oil cake for feed-

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COMPETITIVE PRODUCTS.

Cotton oil comes in competition first of all with olive oil, for which the current wholesale prices are, per gallon: Common, 70 to 71 cents; middling, 79 to 81 cents; fine, 85 to 88 cents; superfine, 95 cents to $1.05; oil of sesame, 73 to 76 cents; cocoanut, 70 to 72 cents; linseed, 53 cents (comestibly used in Lombardy), and peanut oils, as well as butter, 20 to 28 cents, and lard, 10 to 11 cents, also compete with it, although to a lesser degree. Oil cake as food for cattle would have to compete with copra cake from the oil mills of Genoa, which sells there at $1.60 per 100 pounds. Pulp from the beet-sugar factories, selling on the spot at about 5 cents per 100 pounds, is very extensively used for this purpose and is said to produce good results. Other cake, such as sesame, olive, and linseed are used to a very limited extent, the last named, of course, only for fattening. As an ingredient in the manufacture of fertilizers there seems to be no competing article in the same class, although in certain parts of Italy olive-oil mill refuse is sometimes used in its pure state for fertilizing. The materials employed in the local factories are mineral and bone phosphates, nitrate of soda, sulphate of potash, dried blood, etc.

DEMAND FOR OLIVE OIL EXCEEDS SUPPLY.

There can never be any fixed rate of increase in the importation of cotton oil, depending as it must upon the size and quality of the olive crop, but even under the best conditions Italy can not produce edible oils enough for home consumption plus the demand for Italian olive oils abroad. There is a natural discrimination on the part of the Government against cotton oil, for the protection of the olive industry, and for the same reason the duty on foreign olive oils has been increased. A certain amount of refined corn oil has been imported of late for comestible purposes, and as it has been hitherto considered as belonging to the class of inedible oils it pays a very much smaller duty than cotton oil. It is probable, however, that if the importation of this article should reach any considerable degree of importance the duty upon it will be increased to the amount now levied on the cotton product.

MESSINA.

FOREIGN OILS NOT USED.

Consul Charles M. Caughy reports that cotton-seed products are not used in the Messina district. Writing March 8, he says:

The olive oil produced, although of an inferior quality to that of upper Italy and the French Riviera, is always at least sufficient in

quantity for home consumption, and very little oil from other parts of the Kingdom can be found in the shops. I have never heard discussed the question of the importation of foreign oils. There are here three houses only which make a specialty of refining and exporting the best grades of Messina and Calabria edible oils. The bulk of the exportation consists of very common grades and is consumed mostly by the Sicilians in America.

FRANCE.

VOLUME AND VALUE OF THE TRADE.

IMPORTS AND EXPORTS—COMPETITION AND PRICES—PROPOSED ADVANCE IN DUTIES.

Consul-General Frank H. Mason, writing from Paris, March 29, reports that the three leading products of cotton seed, viz, oil, cake, and "linters"—the fiber obtained by reginning cotton seed—are all materials of important utility in various French industries and agriculture. The consul-general continues:

The following statistics of import, export, and consumption in each category have been condensed from official publications, the records of the Paris Chamber of Commerce, and from the books of leading dealers in cotton-seed oil and cake. All statistics of this kind in France are in kilograms, which in solids mean 2.2 pounds each, or 2,204 pounds avoirdupois per 1,000 kilograms or metric ton, and in liquids 100 kilograms equal 26.41 gallons, or 264.17 gallons per metric ton. The total importations of cotton-seed oil into France during the ten years from 1896 to 1905, inclusive, were as follows:

IMPORTS OF COTTON OIL INTO FRANCE, 1896–1905.

Year.	From United States.	From England and other foreign countries.	From French colonies.	Total net weight.
	Kilograms.	*Kilograms.*	*Kilograms.*	*Kilograms.*
1896	20,198,971	5,562,510	.....	25,761,481
1897	42,900,560	10,097,116	4,335	53,002,001
1898	55,061,832	6,141,777	27,417	61,231,026
1899	64,096,510	2,906,759	804	67,004,073
1900	41,447,728	3,962,386	2,605	45,412,719
1901	37,219,748	1,969,480	3,496	39,192,724
1902	24,312,257	1,749,558	8,667	26,070,482
1903	17,936,278	1,930,887	10,120	19,877,185
1904	19,738,593	1,666,326	6,142	21,411,061
1905	37,447,343	1,258,833	432	38,706,608

These totals differ from the French official statistics, because they show the net amount of oil imported, whereas the published tables give the gross weight, in which the cask or other package is included. For purpose of comparison the following résumé of the cotton-oil

imports of 1905, with countries of origin, is given from the official published record. The figures represent gross weight in kilograms:

United States	42,910,411
Great Britain	1,140,787
Egypt	83,952
Algeria	432
Other countries	58,978
Total	44,194,560

The foregoing was valued at 27,400,627 francs, equivalent to $5,288,321. Of this total supply 2,307,059 kilograms were reexported, and the remainder, 41,887,501 kilograms, or 1,586,122 gallons, were consumed in France.

The duty on cotton-seed oil imported into France is 7.20 francs ($1.39) per 100 kilograms net weight, and the present wholesale market quotation is 72 francs, or $13.89, per 100 kilograms, and $138.96 per metric ton of 264.17 gallons.

The average wholesale price of prime summer yellow cotton-seed oil, in bonded warehouse, duty not paid, during each of the past ten years, 1896 to 1905, inclusive, was as follows per 100 kilograms:

Year.	Price per 100 kilos.		Year.	Price per 100 kilos.	
	Francs.	*Dollars.*		*Francs.*	*Dollars.*
1896	44.25	8.54	1901	57.75	11.13
1897	44.50	8.59	1902	66.50	12.83
1898	41.00	7.91	1903	65.00	12.54
1899	44.50	8.59	1904	51.50	9.93
1900	58.75	11.32	1905	45.75	8.82

USES FOR COTTON-SEED OIL.

Cotton-seed oil is used in France mainly for three purposes, namely:

(a) For making oleomargarine, compound lard, and other edible fats, for which purposes from 9,000,000 to 10,000,000 kilograms are consumed in an average year.

(b) For mixing with olive oil and other vegetable oils to make edible oils which are used for salads and in cooking.

The law of France forbids the sale of adulterated olive oil, and although the best grades of cotton-seed oil are clean, odorless, nutritious, and wholesome, the admixture of cotton-seed with olive oil is, legally considered, adulteration of the latter. To what extent the law is violated it is of course impossible to definitely ascertain, but it is well known that an admixture not exceeding 30 per cent cotton-seed with 70 per cent olive oil is exceedingly difficult to detect, and the fact that large quantities of American cotton-seed oil are consumed in the olive-growing districts of France would indicate that much of it is used for that purpose. American cotton-seed oil is the purest and finest that is imported to this country, and it is practically all eaten either in the form of edible fats, or for cooking and salad oil in the south, and for salad oil in the north of France.

(c) For making soap. Very little American cotton-seed oil is used in this country for soap making, for the reason that it is of too high quality and consequently too costly to be used for that purpose. English oil, made from Egyptian and Indian cotton seed, crushed at Hull, is imported to France and used for soap making because its rank unpleasant flavor excludes it from competition with the American product for edible purposes. The other most important soap-making material is peanut oil from the Coromandel coast.

COMPETING OILS AND PRICES.

The other oils with which American cotton-seed oil comes into direct competition in France are as follows: For edible purposes: Olive oil, sesame oil, poppy-seed oil, walnut oil, and arachide or peanut oil from the west coast of Africa. Copra oil, made from the dried meat of cocoanuts, is used both for edible purposes and for soap, while peanut oil from Madras, palm oil, and the lowest grade of olive oil are also used for soap making.

The prices of some of these competing oils, according to present quotations, are as follows:

Arachide or peanut oil, Rufisque extra, 90 to 92 francs per 100 kilograms net (ex. warehouse Marseille). (Franc = 19.3 cents.)

Arachide or peanut oil, Gambia surfine, 85 francs per 100 kilograms (ex. warehouse Marseille).

Sesame oil, Jaffa extra, 95 to 98 francs per 100 kilograms net.

Sesame oil, India extra, 88 to 90 francs per 100 kilograms net.

Sesame oil, India surfine, 84 to 85 francs per 100 kilograms net.

Oleo-stearine, 112 francs per 100 kilograms net.

As nearly as can be ascertained the annual consumption of edible oils in France is about as follows, the quantity of each varying slightly from year to year:

	Kilograms.		Kilograms.
Olive oil	20,000,000	Copra oil	15,000,000
Peanut oil	30,000,000	Cotton-seed oil	30,000,000
Sesame oil	30,000,000		
		Total	125,000,000

The use of cotton-seed oil for cooking purposes is increasing rapidly, not only in France but in Italy and other European countries. Besides its steadily increasing employment as an element of margarine and compound lard, it is extensively used for frying fish, potatoes, doughnuts, and other forms of food, and for these purposes has the economic advantage over olive oil that it may be heated over and over many times, whereas olive oil turns black and acquires a disagreeable taste after having been heated and cooled twice. The high price of butter and lard and the general increased cost of living throughout Europe compels the utmost economy on the part of working people in all expenditures for food. The result has been a steady increase in the use of oleomargarine and compound lard.

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1905:

IMPORTS OF COTTON SEED INTO FRANCE, 1903 AND 1905.

Countries.	1903.	1905.
	Kilos.	*Kilos.*
Egypt	20,398,274	26,742,384
British India	8,899,288	6,724,764
Haiti	.....	1,391,435
Turkey	104,000	1,319,085
United States	.....	219,683
Colombia	.....	23,400
Russia	214,409	.....
Great Britain	458,919	.....
Other countries	578,412	13,597
Total	30,653,300	36,434,298
Value in francs	4,597,995	5,831,987
Value in dollars	887,279	1,125,573

Add to this the enormous importations of arachides, palm nuts, copra, and other oil-producing materials and it becomes easy to understand why the importations of oil cake are in general less than the exports of the same products.

The total importations and exports of seed cake and meal of all kinds from and to all countries during the past three years, and the portion of such imports which was contributed by the United States, are shown by the following table:

Year.	Imports.	Imports from United States.	Exports.
	Kilos.	*Kilos.*	*Kilos.*
1903	126,097,000	21,793,811	142,742,400
1904	152,455,800	15,984,918	157,495,300
1905	147,414,927	26,362,834	154,636,249

The above figures, showing importations from the United States, cover almost exclusively cotton-seed cake, though a small quantity of corn cake was likewise included, but they are sufficient to show that thus far American cotton-seed cake and meal have found only a limited market in France.

It will therefore be of interest to see the origin of all imports to and destination of all exports of seed cake and meal of all kinds from France during the average year. Taking for example 1905, the comparison is as follows:

IMPORTS AND EXPORTS OF SEED CAKE AND MEAL, 1905.

Countries.	1905.	Countries.	1905.
IMPORTS.	*Kilos.*	EXPORTS.	*Kilos.*
United States	26,362,834	United States	727,978
Russia	65,746,980	Sweden	7,530,976
Denmark	131,800	Norway	418,900
Great Britain	14,620,057	Denmark	10,669,150
Germany	386,930	England	8,880,458
Belgium	34,405,614	Germany	88,100,504
Switzerland	174,859	Belgium	23,276,612
Spain	1,608,193	Switzerland	10,267,463
Italy	717,095	Italy	305,397
Roumania	1,247,470	Other foreign countries	1,336,042
Egypt	203,000	Algeria	2,367,724
British India	433,097	Island of Réunion	153,000
Uruguay	181,366	Tunis	323,785
Argentina	727,979	Other French colonies	278,260
Other foreign countries	97,778		
French colonies	419,875	Total	154,636,249
Total	147,464,927	Value in francs	23,195,437
Value in francs	22,119,739	Value in dollars	4,476,719
Value in dollars	4,269,110		

The products with which cotton-seed cake comes into most direct competition in this country, either as feed for stock or as an ingredient of commercial fertilizer, are linseed, sesame, peanut, poppy seed, and copra cakes, all of which, as has been shown, are largely produced in France. All these are fed to domestic animals and are exported for the same purpose to Denmark and other countries.

LINTERS.

The cotton-spinning industry of France is concentrated mainly in the northern provinces, particularly in and about the cities of Lille, Arras, and Tourcoing, in the consular district of Roubaix. Paris spins little or no raw cotton, and the consumption of linters in this district is therefore unimportant. From information furnished by the American consul at Roubaix it appears that the annual consumption of American linters in the north of France ranges from 6,000 to 8,000 bales, and the importation and use of that material are steadily, though slowly, increasing.

Linters, like other raw cotton fiber, are free of duty, and the price varies according to quality from 28 to 38 francs per 100 kilograms—that is, from $2\frac{1}{2}$ to $3\frac{1}{3}$ cents per pound avoirdupois. These are the lowest warehouse rates at the port of entry. In smaller quantities, at inland points, linters sell for 4 to 5 cents per pound when staple cotton is worth 11 cents.

Linters of the best grades can be spun into coarse yarns, which are woven into various fabrics for upholstery, tapestry, carpeting, etc., and for such uses are said to be satisfactory. The lower grades are used in making bedquilts and mattresses, as a substitute for wool, etc.

The principal port of arrival for linters is Havre, but some are imported through Marseille. They are not separately classified in import statistics from raw cotton.

PROPOSED INCREASE OF DUTIES.

The one cloud that overhangs the future of American cotton-seed products in France is the threatened advance of the import duty on oil from the present rate of 6 francs per 100 kilos gross ($1.15), or 7.20 francs per 100 kilos net weight, to a minimum of 14 francs ($2.70) and a maximum rate of 25 francs ($4.82) per 100 kilograms. This proposition, which was formally introduced in the Chamber of Deputies on December 7, 1906, is opposed by the importers and consumers of cotton-seed oil in this country. If enacted in its present form cotton-seed oil imported from the United States would become subject to the maximum rate of duty. In the opinion of interested experts, American cotton-seed oil could stand the advance to the proposed minimum rate, which would apply to imports from other countries, but the maximum rate assessed upon American cotton-seed oil would greatly restrict, if not practically prohibit, its use in this country for edible purposes.

BORDEAUX.

DECREASE IN IMPORTATIONS.

Consul D. I. Murphy reports from Bordeaux, under date of April 3:

The importation of cotton-seed oil into Bordeaux from the United States has greatly fallen off in the past few months, the decrease amounting probably to 75 or 80 per cent. The few large dealers here complain of the present high price of the oil, one of them having informed me that the best offer he received during the first week of April from New York was 65 cents per gallon for an inferior grade, no premier quality having been offered.

The imports of cotton-seed oil from the United States into Bordeaux, according to custom-house figures, for the past seven years were as follows:

IMPORTS OF COTTON-SEED OIL INTO BORDEAUX, 1900–1906.

Year.	Quantity.	Approximate value.
	Gallons.	*Dollars.*
1900	57,763	23,105.20
1901	188,886	75,554.40
1902	273,162	114,728.04
1903	278,746	119,860.78
1904	294,055	132,324.75
1905	468,559	234,279.50
1906	409,000	204,500.00
Total	1,970,171	904,352.67

In the year 1905 the price of peanut oil (the principal competitor of cotton-seed oil) averaged higher than the price of the latter; hence the large importation of that year.

Cotton-seed oil is extensively used here, the "winter yellow" as a salad oil among the poorer classes and the "summer white" as the basis of compound lard and oleomargarine. French law forbids the sale of compound lard unless it is properly marked and labeled "Graisse alimentaire." Oleomargarine is not permitted to be sold in the same shop where butter is exposed for sale. In the retail shops cotton-seed oil is known and sold under various names—"huile de graine," "huile á manger," "huile comestible," "huile blanche"—but never as "huile de coton;" and I find upon inquiry that the consumers appear to be well satisfied with the oil—with its flavor and its wholesomeness.

The sales of cotton-seed oil in Bordeaux in the year 1906 amounted to 343,334 gallons, representing about $171,667. Now that the price has risen so high, peanut oil seems to have supplanted it and practically taken its place in the market.

MEAL, CAKE, AND LINTERS.

I can not find that cotton-seed cake, meal, or linters are known to the trade here or used for any purpose. Peanut cake, however, is largely made and sold here, being esteemed a wholesome food for cattle. The average annual quantity manufactured in Bordeaux for the past five years was about 16,000 tons, representing a yearly average value of $494,080. The prevailing price at this time (April 3) is about 1½ cents per pound, wholesale. Sesame cake is also considered a good cattle food in this region. The annual sales have averaged for the past five years about 1,500 tons, the yearly value of which was $40,530. The wholesale price now is about 1¼ cents per pound. Walnut cake, poppy-seed cake, rape-seed cake, and linseed cake are not sold in this district to any extent.

COMPETING OILS.

The most dangerous competitor of cotton-seed oil is peanut oil, the ordinary grades of which are now actually the cheaper of the two.

These grades are selling at about 60 cents per gallon, while an inferior grade of cotton-seed oil is quoted at 65 cents. It may be put down as certain that the prices of the two oils being equal, or nearly so, people here will prefer peanut oil, probably because they know it better and because it is largely manufactured here. The African peanut crop of the past season was very large, although I am informed some of it was injured by unusual rains in the growing sections.

Enormous quantities of peanuts are imported here—last year over 50,000 tons. In Bordeaux there are three immense establishments where the nuts are pressed, the average yearly output of oil for the past five years having been 12,000 tons, the average yearly value of which was $2,084,400. The demand for peanut oil is invariably brisk and more could be sold if it were possible to make more.

The finest quality of peanut oil is selling here for 82 cents per gallon. This oil is preferred by many consumers to the best olive oil. It is as sweet, as palatable, and as wholesome as the latter. The

only objection that can be urged against it is that it is liable to become rancid after three or four months. Its sale in Bordeaux largely exceeds that of olive oil, and, like cotton-seed oil, it is never sold under its own proper name at retail, but as "huile douce," "huile pure," "huile superieur," "huile comestible," etc.

PEANUT, WALNUT, AND SESAME OILS.

Peanut oil was exported to the United States from Bordeaux to the amount of $115,220 from January 1, 1901, to December 31, 1906, as shown by the consular records.

Walnut and sesame oils are also, in a measure, competitors of cotton-seed oil, but in this part of France the quantity sold is not considerable. In this region oil is seldom used in domestic cookery, butter and lard being almost exclusively employed. In other localities along the Mediterranean and in the north of France olive, peanut, walnut, and sesame oils are used. Formerly lower down on the coast cotton-seed oil was largely used by the packers for the cooking of sardines before packing them in olive oil, but as it left a slimy, whitish deposit on the fish, and because of the high price, its use has been almost entirely discontinued, and peanut oil has superseded it and other oils. Neither peanut nor olive oils leave any deposit on the fish, but the former whitens the flesh and the latter gives it a slightly yellowish color.

OLIVE OIL.

There are a number of grades of olive oil, differing in color and flavor and in the degree of clarification, selling April 1 from 93 cents to $1.40 per gallon. The finer grades of olive oil have not a great sale here, only people of very cultured tastes caring to pay the price asked for it. In fact, I find but little prejudice in favor of olive oil, the ordinary consumer apparently caring but little for the various names under which his oil is sold. If it is of good flavor, reputed wholesome and healthful, he is satisfied, without inquiring closely whether he is getting olive, peanut, cotton-seed, or other oil.

The finest grades of olive oil come from the vicinity of Nice, on the French Mediterranean coast, and are monopolized by two or three business houses in Bordeaux, their principal competitors in buying from the growers being one or two London perfumery manufacturers, who use it in their hair preparations. This particular oil really has no appreciable taste and would not appeal to the ordinary consumer. Before putting on the market it is allowed to rest in vats at an evenly cool temperature and filtered many times through fine-carded cotton.

There are many intermediate grades and varieties between this highest grade of olive oil and the inferior grade, selling now at 93 cents per gallon. It is not giving away a secret to state that the occasional shortage of the French oil crop is made up by the importation of other oils, notably those from Tunis, Italy, and Spain. And it is known that shortages have been made up by some of the growers by the liberal use of peanut oil, made here and at Marseille, and cotton-seed oil imported from America.

It is impossible to state the exact amount of olive oil brought to Bordeaux, for the Octroi records group all oils under two heads, i. e., "Vegetable and animal oils" and "Mineral oils." Under the former head the records show that in 1906 there were received in Bordeaux 303,259 gallons and under the latter 798,481 gallons. Among "Vegetable and animal oils" must be included olive oil from the Mediterranean coast and from foreign countries, peanut oil manufactured in Havre and Marseille, walnut, sesame, and other edible oils.

To give yearly values is quite impossible. The records of the consulates show that in the past six years (i. e., January 1, 1901, to December 31, 1906) olive oil exported to the United States from Bordeaux was valued at almost $2,000,000.

BUTTER AND LARD.

Of other competitors of cotton-seed oil, there were sold in Bordeaux during the year 1906, 1,390,786 pounds of butter, at an average wholesale price of 32 cents per pound, or $445,051.

Lard to the amount of 505,853 pounds was sold, at an average price of 14 cents per pound, or $70,818. There were also made and sold here in the same year 3,300,000 pounds of compound lard (graisse alimentaire), at an average price of 8½ cents per pound, a total of $280,550. The present price of this article is 10½ cents per pound.

Of oleomargarine, about 500,000 pounds were sold here in 1906, at an average price of 9¾ cents per pound.

There is a large establishment here where compound lard is made, and I was informed there that formerly they used over 200 barrels of American cotton-seed oil per month in its manufacture. Now, because of the high price of cotton-seed oil, they use peanut oil exclusively.

Of oleomargarine, as nearly as I can ascertain, there were sold about 500,000 pounds in Bordeaux in 1906, at prices ranging from 8½ cents for ordinary to 10¼ cents per pound for first quality, wholesale.

TARIFF DUTIES.

Cotton-seed oil's principal competitor, peanut oil, has one great advantage, i. e., it is not subject to tariff duties. As the peanuts are imported from Senegal, over which there is a French protectorate, no tariff meets them at French ports, and the oil being pressed from them here is not taxed. Walnut and sesame oils are likewise favored, both being manufuctured here. Cotton-seed oil, on the contrary, has to meet a duty of 6 francs per 100 kilos, gross.

The principal importers of cotton-seed oil in Bordeaux are Ph. Bouchard & Co., No. 12 Cours du Chapeau Rouge; Ducat & Marchow, No. 20 Cours d'Alsace-et-Lorraine, and Gelos-Didot, No. 19 rue Marengo.

HAVRE.

CONSUMPTION IN THE NORMANDY DISTRICT.

Consul Alphonse Gaulin, of Havre, under date of April 11, furnishes the following report on the cotton-seed products trade of northwestern France:

The imports of cotton-seed oil entered for consumption at Havre during the last three years were: 4,080 metric tons (metric ton=2,204 pounds) in 1904, 5,295 in 1905, and 6,674 in 1906. About 30 per cent of the quantity imported remained in this consular district, which comprises the greater part of Normandy, parts of Brittany, and of the old provinces of Anjou and Maine. The rest was distributed in Paris and vicinity and in the north of France. There is only an insignificant quantity of cotton seed crushed in this section of the country and practically no consumption of cotton-seed oils other than American oil.

Until the year 1905 at least 60 per cent of the cotton-seed oil used in this district was white summer oil, imported by the local manufacturers of compound lard. During the season of 1905–6, however, prime yellow winter oil, owing to the high prices of edible peanut oils, was shipped in larger quantities than white oil, and it looked as if it had secured a permanent foothold and that the demand for it would increase indefinitely. But the poor quality of this season's crop has proved to be a serious check, and white oil has, for the time being, regained its former supremacy. During this season the off grades have been imported in small quantities for soap-making purposes, but this is an exceptional case. So long as the prices of linseed oil remain at their present level there will be no permanent market in this district for those grades. Yellow summer oil has also been used of late to a very limited extent, but this is an equally exceptional condition of affairs. There is very little business done in white winter oil. It is used only in the drug trade, and the average yearly imports do not exceed 200 barrels. There are no imports of crude oil.

PREJUDICES AND PRICES.

White summer oil is used exclusively in the manufacture of compound lard, the annual production of which averages in this district from 1,000 to 1,250 tons. Prime yellow winter oil is used both as salad oil and as cooking oil. It is generally mixed with the lower grades of olive, peanut, sesame, and poppy-seed oils and sold under the greatest variety of names, but very rarely as cotton oil. It will be found in liter or half-liter bottles bearing labels of an indefinite and noncommittal nature, such as "huile comestible" (edible oil), "huile à frire" (cooking oil), "huile blanche" (white oil), "huile à salade" (salad oil), etc. Cotton oil, as such, however, is beginning to be favorably known, and it may be said that in the city of Havre there exists but little prejudice against it. The prejudice is much stronger in the country towns, especially in the departments of Calvados and La Manche. In view of the different grades of oil imported and of the mixtures in which they enter, the difficulty of giving even an approximate estimate of the aggregate value of the cotton-seed oil trade in this district is more than apparent.

The prices of cotton-seed oil in Havre follow the course of the American market. It therefore goes without saying that they are much higher this season than during the corresponding period of last season. The ruling prices of the different grades per 100 kilograms (220.46 pounds), duty paid, in Havre on March 29, 1907, and on March 29, 1906, were as follows:

PRICES OF COTTON-SEED OIL AT HAVRE, 1906 AND 1907.

Grade.	Price per 100 kilos.	
	March 29, 1906.	March 29, 1907.
	Dollars.	*Dollars.*
Prime yellow summer oil	12.54	15.63
White summer oil	13.31	17.94
White winter oil	13.60	18.28
Prime yellow winter oil	13.31	17.17
Off grades	12.44	13.89

Compound lard has consequently risen in price and is now selling at from $19.50 to $20.45 per 100 kilograms.

CLASSIFICATION OF CAKE.

The French customs statistics include all the different kinds of oil cake under one head, and it is therefore impossible to state accurately the quantity of cotton-seed oil cake and meal imported into this district. Local merchants, however, estimate it at between 3,000 and 4,000 tons. Whatever is imported is used as feed stock, mixed with other kinds of fodder.

The ruling price of cotton-seed cake and meal in Havre on April 8, 1907, was $3.18 per 100 kilograms, and the average price during this season from $3.38 to $3.47. There is no cotton-seed cake used in this district as a fertilizer, the chief obstacle in the way being its price, which is considerably higher than that of the colza and other oil cakes.

LIMITED USE OF LINTERS.

Cotton-seed linters are used to a limited extent in France and are imported almost entirely through the port of Havre. Being included with raw cotton in the French customs statistics, there are no official figures indicating the quantity of these importations, but leading Havre cotton merchants are of the opinion that there are between 700 and 1,000 tons used in France every year. The Havre firms sort out the linters and offer them to the trade in three different grades. The prime quality contains linters taken from middling fair to good middling cotton, and sells at an average of $7.72 per 50 kilograms (110.23 pounds). It is used in the manufacture of cotton for antiseptic dressing and of shoddy goods.

The second quality is taken from fully middling to low middling cotton. It sells at $4.82 per 50 kilograms. It is used for packing for machines and in the manufacture of felt hats. The third quality is taken from ordinary and lower grades of cotton. It sells at $2.31 per 50 kilograms. It is used in the making of artificial eiderdown for bedquilts and for weather strips. The second quality has the largest

sale, the best not being readily obtainable. Part of the linters are purchased by the local and Rouen spinners, but the bulk goes to the cotton manufacturers of the eastern sections of the country.

COMPETITORS OF COTTON OIL.

The edible oils mostly used in this district are peanut (made from undecorticated arachides imported from the West Coast of Africa) and sesame oils, both of which are frequently mixed with the lower grades of olive oil. Next in importance, from the standpoint of quantity sold, are the higher grades of olive oil and "oeillette" oil, the latter being made out of a variety of the poppy seed grown in the north of France. "Oeillette" and the best grades of olive oil are the most expensive oils in the market, and are therefore purchased only by the well to do. The sales of cotton-seed oil are probably only slightly inferior to those of the last two mentioned oils. Other oils are undoubtedly sold in this market, but they are mixed with some of those already mentioned and the labels fail to reveal their existence. The law of August 1, 1905, relating to fraud in the sale of merchandise provides against the use of deceptive names on labels and trademarks, and it is prohibited, for instance, to sell arachide and cotton-seed oils under the name of olive oil, but a mixture of the same oils may be sold under any name which will not lead the purchaser to believe that he is buying pure olive oil or pure arachide oil, etc. The ingredients of the merchandise need not be designated on the label if the label is not positively misleading. It is a privilege of which the French oil crushers and dealers have not been unmindful and which has been conducive to not a little confusion. As a result, it would be useless to attempt an estimate of the aggregate values and quantities of the different kinds of oil consumed in any given district.

ANIMAL FATS.

As for soap oils, cotton-seed oil can not be said to have as yet seriously entered this market. When it does it will have to compete chiefly with linseed oil and with arachide oil made out of decorticated nuts imported from India. Among the animal fats with which cotton-seed oil enters into competition, butter plays the most important part, Normandy being the chief center of the French butter industry. This district produces yearly about 40,000 metric tons of butter, valued, in round figures, at $25,000,000. A large share is used for local consumption, but no accurate figures are obtainable. Butter is used in the French cooking to an extent which, in the eyes of the American cook, would appear extravagant. It is a case where the proverbial French thrift does not exist, at least in Normandy. The prevailing prices of this commodity, however, do not allow the poorer classes to use it as generally as they would desire, and they have to resort to vegetable oils and greases.

Margarine (or butterine) finds a larger market among the bakers and with the hotels and restaurants than among the people at large. Copra butter is only beginning to be sold in this district, but a vigorous campaign is being waged in its behalf, and it would not be surprising if a demand were created for it before long.

French lard is ordinarily sold in large quantities, but owing to the excessive dryness of last season it is scarcer and dearer than for many years past, and this has resulted in bringing about a renewal of the imports of American lard and especially in greatly increasing the sales of compound lard. Edible tallow should also in a measure be taken into account, but it is impossible to ascertain the quantity consumed.

The following were the average ruling prices in the Havre market during the month of March, 1907, for edible oils (other than cotton-seed oil) and greases per 100 kilograms (220.46 pounds):

PRICES OF EDIBLE OILS AND FATS AT HAVRE, MARCH, 1907.

Oils or fats.	Price per 100 kilos.	Oils or fats.	Price per 100 kilos.
	Dollars.		*Dollars.*
Olive	28.16 to 35.67	Butter	64.74 to 68.00
Peanut	16.40 to 18.70	Lard, French	27.50 to 31.20
Sesame	16.25 to 18.10	Lard, American	28.95 to 30.88
"Oeillette"	26.80 to 27.02	Margarine	17.37 to 34.74
Various edible (mixed) oils	13.50 to 17.50	Edible tallow	17.00 to 17.27

FEED FOR ANIMALS.

As an article of food for animals cotton-seed oil cake and meal come into competition with the cereals and forage plants produced and imported into the district, and also with various kinds of domestic and foreign oil cakes. The annual yield of oats in this district varies between 25,000,000 and 27,000,000 bushels, about one-tenth of the total crop of the country. Imports from the other departments and from Algeria, Russia, Norway, and Sweden make up whatever deficiency may exist. Barley is also used extensively as stock feed. It is a local product which yields from 8,500,000 to 10,000,000 bushels yearly. Buckwheat is another local product used as food for cattle, especially in Brittany. Its yield is practically equal to that of barley.

To the foregoing should be added from 35,000 to 40,000 tons of corn imported every year from Argentina and the United States, over 40,000,000 bushels of beet roots, and from 8,000,000 to 10,000,000 bushels of other forage plants grown in this district, and considerable quantities of hay, bran, and straw. Moreover, the fact that the district contains 1,042,342 acres of pasture and meadow lands should not be overlooked. And yet there has been for years a very active trade in oil cakes. Mr. Schribaux, the eminent professor, of the Institut Agronomique of Paris, has estimated the total oil-cake trade of France at an average of $15,000,000 a year. This section probably contributes one-tenth of this amount.

The kinds of oil cake for which there is the greatest demand are, in the first place, the colza cake, a product of the rape seed grown in the district; then linseed-oil cake, both domestic and foreign, the latter being chiefly Russian and American cake. Corn cake and meal also make a good showing, together with arachide, sesame, and copra cakes. The imports of all kinds of oil cake into Havre were 20,733 metric tons in 1906, 26,610 tons in 1905, 15,149 tons in 1904, all from

the United States with the exception of a few hundred tons. Linseed and corn cake and meal constituted the bulk of the imports, cotton-seed cake being a poor third.

The fertilizers chiefly used in this district are nitrate of soda and the various kinds of phosphates and potash salts. The oil cakes used as fertilizers are the colza, linseed, and sulphurized castor-oil cakes. The other oil cakes have a very limited market. Cotton-seed cake not being used at all for fertilizing purposes, can not be considered as a competing product.

There has been of late years a constant decline in the imports of cotton-seed-oil cake and meal, which at one time had a decided preponderance over similar articles sold in this district. A succession of poor shipments have brought about the change. The imports of cotton-seed oil have remained practically stationary during the last five years, but they do not compare favorably with the imports made during the period of 1897–1901. In fact, they have reverted to the level of 1896.

A study of the customs statistics will show that the importation of cotton-seed oil beyond a certain point depends chiefly upon the available quantities of arachide and sesame oils in the French market. These oils are held to be superior to the cotton-seed products. Unless cotton-seed oil can be sold a great deal cheaper than arachide and sesame oils it will not, under present conditions, supplant the latter and therefore materially increase its own sales.

DECREASE IN OLIVE OIL.

The trade in olive oil has constantly increased during the last four decades, but its relative importance has also gradually decreased. The use of vegetable oils becoming more and more general, other oils have come in the market and made far greater progress than olive oil. It is generally believed in the United States that olive oil is used by the French people to the exclusion of all other oils. This is a most erroneous impression. There is no "national oil," there being no "national taste." There are, however, "local tastes," which are the result of local traditions and local prejudices, which have not unfrequently been influenced by local products. It may truly be said that in France every kind of oil has its partisans, and that each one holds almost undisputed sway over well-defined regions. While the better grade of olive oil is sold in nearly every department, its price is prohibitive except for a very limited number. The lower grades are merged with other oils or sold only in the south of France. In the north "oeillette" and arachide oils are preferred by most people, who find that the virgin olive oil, so called, is too fruity. In the nut-growing districts, such as the departments comprised within the boundaries of the former provinces of Touraine and Poitou, nut oil is the favorite edible oil. In the vicinity of Mans and in the department of Ille-et-Vilaine there is a grade of linseed oil which enjoys the greatest popular favor. A review of the different departments would probably reveal similar conditions existing in many places.

To sum up, a substantial reduction in the price of cotton-seed oil appears to be essential to a considerable extension of the trade in

northwestern France. This applies equally to the edible and soap grades. In the case of cotton-seed oil cake the lost ground could probably be retrieved if none but cake of good quality were shipped. The trade could also be promoted through the agency of the agricultural syndicates, of which there are nearly two hundred in the country. Free distribution of cakes to the farmers through those syndicates might prove to be the most fruitful kind of advertising. The manufacturers of copra cakes have adopted this method and they have achieved splendid results.

MARSEILLE.

INCREASED DEMAND FOR OILS.

Consul-General Skinner, writing from Marseille, February 23, furnishes a comprehensive report on the importation of cotton-seed products into that port, and supplies figures taken from French returns showing quantities and values of cotton-seed products imported through the port of Marseille, and prices for which they are sold. The consul-general writes:

While the demand for cotton-seed oil will be affected from time to time by threatened or enacted fiscal legislation in Europe, it seems to me that such setbacks are bound to be temporary and local, for the reason that when all is said and done the world-wide need of oils and greases goes on increasing, while the raw-material areas are known, limited, and subject to no systematic effort toward enlargement. Upon this and similar points I refer to a report from this consulate, made in December, 1906, and published in Daily Consular and Trade Reports, January 18, 1907.[a]

The present general demand for edible vegetable oils is no longer limited to the southern parts of Europe and other Latin populations, but has spread, notably in the United States, thus withdrawing from the market considerable quantities of what were formerly industrial oils, and to that extent embarrassing the soap trade, which itself tends to increase throughout the world. Civilization and cleanliness go hand in hand, and the demand for soap, which amounts to from 12 to 15 pounds per capita per annum in the United States and England, is increasing throughout the world, according as other nations become prosperous and ambitious.

A certain American copra oil concern in the Philippines, organized a very short time ago for the definite purpose of exporting its product to the United States, found upon the completion of its works an immediate demand for the entire output from the native population. Germany and France are increasing their soap production and are taking up more and more of it in their domestic markets. Russia is now importing tallow copra and palm oil, and other nonmanufacturing countries are importing soap heavily. The United Kingdom exported 46,635 tons of soap in 1899 and 58,883 tons in 1906. The United States exported soap to the value of $1,136,880 in 1897 and

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[a] A portion of this report will be found on page 48.

$2,670,231 in 1905. The exports of France are practically stationary at about 33,000 tons per annum, but the domestic consumption increases. Thus all the influences tend to mark up prices, if not always profits, so that apparently, as regards oils and greases, we must now pass through a considerable period before the possibility of supply adjusts itself to the demand.

EXTENT OF IMPORTATIONS.

Cotton-seed oil, cake, and meal are used extensively in France, the oil being required chiefly at Marseille, while the cake and meal find a market only in the north. Of the total cotton-oil importation into France, of 36,835 tons in 1906, 22,836 tons were received at Marseille, which is and doubtless will remain the most important foreign market to which American refiners turn their attention. The great soap and edible oil trade offers a buying market of vast assimilative proportions, and the immense oil-crushing industry offers at the same time to the American cotton-oil manufacturers their liveliest competition. The following quantities (net weights) of cotton-seed oil were imported into Marseille during the last ten years:

IMPORTS OF COTTON-SEED OIL INTO MARSEILLE, 1897–1906.

Year.	United States.	England.	Other.	Total.
	Tons.	*s.*	*Tons.*	*Tons.*
1897	42,003	6,805	192	49,000
1898	51,003	1,792	167	52,962
1899	47,546	1,463	229	49,239
1900	32,783	1,672	126	34,581
1901	33,604	604	114	34,322
1902	13,712	1,030	51	14,793
1903	13,473	1,374	456	15,303
1904	13,384	1,323	295	15,002
1905	32,283	80	85	32,448
1906	17,325	5,074	436	22,835

IMPORTS OF COTTON-SEED OIL INTO FRANCE, 1903–1906.

Year.	United States.	Other countries.	Total.
	Tons.	*Tons.*	*Tons.*
1903	20,788	2,600	23,388
1904	23,798	2,921	26,719
1905	46,641	1,395	48,036
1906	28,630	8,205	36,835

PRICES OF AMERICAN AND BRITISH OILS.

The imports of American cotton oils at Marseille during 1906 consisted of 90,021 barrels of comestible oils, against 6,550 barrels of industrial oils. The prices at which American and British oils have been sold in this market during the last ten years, in bond and package included, are shown in the subjoined table. The prices are per 100 kilos, equal to 220 pounds.

PRICES OF AMERICAN AND BRITISH OILS, 1897–1906.

Year.	American.	British.	Year.	American.	British.
	Dollars.	*Dollars.*		*Dollars.*	*Dollars.*
1897	8.08	7.78	1902	12.81	12.40
1898	7.98	7.77	1903	12.54	11.78
1899	8.61	8.80	1904	9.96	9.48
1900	11.80	11.06	1905	8.84	8.28
1901	11.17	10.56	1906	12.88	11.90

SLIGHT DEMAND FOR CAKE.

Owing to the vast quantity of oil cake produced in the Marseille mills, there is no demand at this port for American cotton-oil cake or meal, and I am unable at present to supply statistics for France in regard to the total importations of such products from the United States. The total importations of oil cakes into France during four years have been: 1903, 128,180 tons; 1904, 133,811 tons; 1905, 147,465 tons; 1906, 109,953 tons.

IMPORTATION OF LINTERS.

Cotton-seed linters are imported at Marseille to the extent of perhaps a thousand bales per annum, and are reforwarded to manufacturers in the interior. They are used for the manufacture of cheap goods, and could be used in much greater quantities if the American shippers exercised greater care in sorting and packing. Complaint reaches me that no attempt whatever is made by the oil manufacturers to grade this material, and it has been stated to the importers that for some reason not clearly understood it would be difficult to forward linters in better condition. The German market for this merchandise is very much more important than that of France.

COMPETITION WITH OTHER OILS.

Cotton oil enters into competition at Marseille with olive, sesame, peanut, and copra oil for edible purposes, and with every form of industrial grease for other purposes. It is a curious fact that while American oils are entering Marseille in large quantities, Marseille manufacturers are at the same time exporting various classes of their oils to the United States. During 1906, for example, when 17,325 tons of American oil alone came into Marseille, the declared value of Marseille oils exported to the United States was as follows:

OIL EXPORTED FROM MARSEILLE TO THE UNITED STATES, 1906.

Oil.	Value of export.	Oil.	Value of export.
	Dollars.		*Dollars.*
Almond	215	Peanut	14,526
Castor	9,247	Palm	303
Copra	141,368	Pennyroyal	1,004
Cade	414	Savin	1,104
Essential	1,009	Sesame	85,461
Geranium	4,390	Thyme	272
Edible olive	471,404		
Industrial olive	181,616	Total	912,333

The following prices per 100 kilos prevailed on the oils commonly sold in this market in 1906 and 1907:

PRICE PER 100 KILOS OF OILS ON MARSEILLE MARKET, 1906–7.

Oil or fat.	1906.	1907.
	Dollars.	*Dollars.*
Cotton seed:		
American prime summer yellow	9.84	13.51
American off grade	8.87	12.35
American winter edible	10.81	15.44
American choice white edible	10.81	15.44
English sweet edible	9.65	12.74
English ordinary refined	8.68	11.56
Peanut (Marseille make):		
Ordinary soap oil	9.45	11.96
Ordinary soap oil for March to December, 1907	9.55	11.96
Edible	14.47 to 17.37	15.44 to 18.33
Copra (Marseille make):		
Cochin	13.31	19.30
Ceylon	13.12	18.91
Ordinary soap oil	11.58	17.96
Sesame	13.89	16.40
Palm	11.48	14.67
Tallow:		
Australian	12.93	17.17
River Plata beef	13.51	17.66
River Plata mutton	13.61	17.75
American No. 1	12.54	16.60
Yellow grease stearin	11.87	16.21

It is difficult to ascertain just how much olive oil finds a market in Marseille. The imports were, in 1904, 29,855 tons; in 1905, 18,666 tons, and in 1906, 23,152 tons. The export of olive oil from this port amounted to 12,448 tons in 1904 and 14,558 tons in 1905.

IMPORTS OF VEGETABLE SEEDS.

The local manufacture of vegetable oils increases or diminishes according as the crops are good or bad in the seed-growing countries of the world. Importations of seeds at this port have been as follows in recent years:

IMPORTS OF VEGETABLE SEEDS INTO MARSEILLE, 1898–1906.

Year.	Quantity.	Year.	Quantity.
	Tons.		*Tons.*
1898	309,380	1903	494,440
1899	328,642	1904	433,255
1900	336,457	1905	359,986
1901	384,478	1906	430,461
1902	415,792		

Every pound of the foregoing material is treated for oil which competes more or less directly with the American product.

The following table shows the export of oils from France during the years 1905 and 1906:

EXPORTS OF OILS FROM FRANCE, 1905 AND 1906.

Oils.	1905.	1906.	Oils.	1905.	1906.
	Tons.	*Tons.*		*Tons.*	*Tons.*
Olive	21,974	22,819	Sesame	11,907	9,477
Palm	766	446	Peanut	5,557	4,818
Illipi, etc	12,718	15,131	Colza	2,476	2,227
Castor	4,204	3,812	Poppy (oeillette)	1,314	1,206
Linseed	3,778	4,176	Poppy (pavot)	340	358
Rape	76	.....	Others	1,873	2,006
Cotton	5,279	6,689			

PRICES FOR CAKE.

As previously stated, cotton-seed cake and meal find no outlet in this city or region, where they would have to compete with other oil cakes, which at this date (February 23) are selling in the Marseille market at the following prices per 100 kilos (220 pounds):

PRICES OF SEED CAKE OTHER THAN COTTON SEED ON MARSEILLE MARKET, 1906 AND 1907.

Kind of cake.	1906.	1907.	Kind of cake.	1906.	1907.
	Dollars.	*Dollars.*		*Dollars.*	*Dollars.*
Peanut	3.43	3.28	Poppy, white	2.80	2.80
Sesame, white	2.94	2.99	Copra, white	2.94	3.66
Sesame, black	2.70	2.80	Copra, ordinary	2.80	3.38

DECREASE IN PRODUCTION OF OLIVE OIL.

It is of course true that the Latin countries of Europe, which formerly produced sufficient quantities of olive oil for their own uses, are now compelled to make use of cotton or other edible oils, partly because the olive-oil crop of the world tends to decrease in quantity and to deteriorate in quality. While manufacturers of seed oils generally find it possible to produce uniformly satisfactory merchandise, the peasant farmers have given little attention to the care of their olive trees and the oil manufactured in a small way in thousands of mills is produced and handled very much as it always has been. Certain regions, like Aix, in France, and Lucca, in Italy, very famous as centers from which high-grade olive oil is forwarded, have lost their importance as growing centers as to quality, and bottlers of high-priced oils are compelled to scour the whole of southern Europe to pick up here and there first-class substitutes, by which the ancient reputation of Aix and Lucca is maintained.

There is at present a demand for low-grade soap oils at Marseille which American manufacturers should be able to supply to some extent. Why they have offered nothing but superior oils is not quite clear, as local importers, to my certain knowledge, are actively looking for soap oils at this time. Claims made by local importers, based upon unsatisfactory deliveries of prime summer yellow contract merchandise, have perhaps given rise to the impression that Marseille is interested only in edible stock. This, however, is not the case.

ADVICE TO AMERICAN PRODUCERS.

The following paragraphs are taken from the report to which Consul-General Skinner refers and which was published in Daily Consular and Trade Reports for January 18, 1907:

In view of the world-wide demand for vegetable greases and the apparent limitation of the world's stocks of raw material, it will be useful for the American cotton-oil manufacturers to inquire of themselves whether they are not in greater need of knowledge regarding manufacturing methods for their own use than of foreign markets for a product which is already marketable at high and generally increasing prices. I am told, with how much accuracy I can not say, that comparatively little of the cotton-oil cake or other cakes produced in the United States are subsequently treated by chemical process for the purpose of extracting therefrom every vestige of oil remaining. It is intimated to me that by applying Marseille processes in the southern United States the yield of low-grade oils could be increased by as much as 15 per cent, an enormous figure when the total amount of the cotton-oil production is considered. Several large establishments in this city take up the residue of olive-oil mills and of vegetable-oil mills and, using either sulphuret of carbon or tetrachloride of carbon as solvents, withdraw from the meal or the cake every remaining vestige of oil with entire commercial success.

SAPONIFICATION OF CRUDE PETROLEUM.

For a number of years inventors have been looking for a process which would permit the saponification of crude petroleum, but thus far without any real progress. For a year or two a mineral grease of rather mysterious origin was offered to soap makers in this market, which a few of the more venturesome purchased in trial quantities and used in low-grade soaps to the extent of 5 per cent. It was found that the resulting soap acquired a disagreeable color with age, and the theoretic economy realized by the use of only 5 per cent of this mineral grease was too trifling to offer much practical encouragement to the scheme, and in the present state of the soap-making industry a first-class product continues to be obtainable only by a skillful combination of copra oil and a neutral oil, such as that of peanut, cotton, or gingelly seed.

NANTES.

OIL FROM EGYPTIAN SEED.

Consul Louis G. Goldschmidt, of Nantes, reports, under date of March 23, that a considerable quantity of cotton-seed oil is used at Nantes, which is pressed by local mills from Egyptian seed. He continues:

About 2,000 tons of cotton-seed oil is used in this consular district each year. It is manufactured here from cotton seed imported from Egypt and is used exclusively in the manufacture of soap by the local soap factories. Oil is worth from $13.50 to $13.88 per 100 kilos, making the ton of 1,000 kilos $135 to $138.80. The value of the oil used annually is about $275,000. Linters are not used here.

Cotton-seed oil comes in competition with peanut oil, cocoanut oil, and palm oil. If cotton-seed oil is used as a food, that fact is not known. It probably enters to a great extent into the manufacture of edible oils. It is very hard, if not impossible, to obtain the quantities and values of the competing oils here. Most of them are not manufactured in this district, some being imported, but not appreciably through this port.

Cotton-seed cakes and meal come in competition with peanut cakes, copra cakes, and rape-seed cakes. Very little cotton-seed cake is used here for feedstuff and none is employed for fertilizers. The quantity used is very small, as most of the cakes manufactured by the local factories are exported to England, where cakes from undecorticated (unshelled) seed sell at about $23.50 per ton and those from shelled seed at $36.25 per ton. The meal or cakes used for feed for cattle are those made from shelled seed, and sell at about $3.60 to $3.80 per 100 kilos.

In the last two years there has been some increase in the use of cotton seed, and consequently in the same proportion in the cotton-seed oil used here for manufacturing purposes.

EGYPTIAN SEED SAID TO BE SUPERIOR.

The cotton seed used here comes from Egypt. It is claimed to give a slightly larger rendering in oil. The Egyptian seed is said to give about 15 per cent of oil, and seed that is decorticated gives about 32 per cent oil. The American seed gives about 2 per cent less. The seeds are also cleaner, containing much less lint than the American seed, and consequently the cakes can be more easily used as feed for cattle. If the seeds can be shipped without the shell, or at least without the large quantity of lint adhering to American seeds, I believe that the sales of the American product can be considerably increased.

STATEMENT FROM A LOCAL FIRM.

In conclusion I shall give the following information obtained by me from the firm of L. Loiret & Ch. Haentjens, brokers, at Nantes, which has made a study of the cotton-seed question:

There are no imports at Nantes of cotton-seed cakes, nor meal, nor cotton-seed oil. Yet the local soap factories, which are quite important, since they produce about 20,000 tons of soap per year, employ cotton-seed oil whenever they

find an advantage in so doing. Generally these oils are purchased from an important oil factory here, which manufactures from Egyptian cotton seeds. But when seeds are high and cotton-seed oil comparatively cheaper our soap makers import some from England. Nantes imported in 1906 1,146 tons of cotton-seed oil from Liverpool and Hull.

Regular steamship service exists between Nantes and English ports, either direct or by transshipment, which makes this business comparatively easy, as the soap makers do not purchase these goods except as needed from time to time. One soap factory alone (the most important one here) grinds cotton seed as well as other kinds of oil-producing materials—peanuts, palm seed, and copra.

Of cotton seed they imported in 1906 10,124 tons and in 1905 10,104 tons. These importations have been about 2,000 tons greater per year than the average of the preceding years, due principally to the high price of peanuts. All the cotton seed imported comes from Egypt. The seeds are not entirely clean of lint and the oil mills have not the necessary machinery for unlinting. The cotton-seed oil produced is used exclusively for soap making. The factories are enabled to extract the glycerin, which is sold to the United States through English houses.

The Egyptian cotton seed renders about 17 per cent of oil, more or less, according to certain years and conditions of shipment. Ten thousand tons of seed should give about 1,700 tons of oil, 100 tons of "mucilage," 3 tons of dejections, and 8,200 tons of cotton-oil cakes or meal. These cotton cakes are sold, without being reduced to meal, for feedstuff. During a number of years it has been very hard to introduce these oil cakes for feedstuff, and they have been shipped to England and Denmark for consumption in those countries. But now, and particularly owing to the extremely dry weather last year and the consequent scarcity and high prices of fodder, about three-fourths of the cotton cakes made here are used in this region.

The soap makers mentioned would like nothing better than to try American cotton seed if quality and price permitted it. Some years ago sea-island cotton seed was received here which was of beautiful quality.

There also seems to be a fear that the American cotton seed, owing to a long voyage, might not reach here in good condition and might become heated. However, we believe this fear unfounded, as it takes the cargoes from Alexandria about two weeks to get here, while cargoes of phosphates from the United States reach here in about twenty days, coming from Tampa.

In connection with this it would be possible to us to ship partial cargoes of phosphates and part cotton seed, if such could be obtained in the same region—one hold of phosphates and one hold of cotton seed. In this way freight rates might be considerably reduced. It is supposed that both these products come from the Southern States. We have several times received part cargoes of phosphates which had left the rest of the cargo, consisting of cotton bales, at Havre before coming to Nantes.

RHEIMS.

MEAL CAKE LARGELY USED.

Consul J. Martin Miller, of Rheims, reports that as the cities of his district are inland ports, each deriving its imports from various ports in other consular districts, he can not give figures representing the amount of cotton-seed products used. He writes under date of February 26:

While this is one of the greatest agricultural sections of France and great quantities of grain and plants are produced for the manufacture of edible oils, as well as large crops of beets and other products for animal foods, cotton-seed meal cake is used here extensively. In Rheims and some of the other cities there are some large feed stores that seem to make a specialty of handling cotton-seed cake

particularly for dairy cows. The cakes here average about 6 inches in width, 15 inches in length, and 1¼ inches in thickness. They are soaked in a pail of water sometimes, but generally are crushed into small pieces the size of a walnut and smaller by a hand machine and then put into water and converted into a mush. This is the popular method of preparing the cake for cows. It is also fed to horses.

The ground cake (cotton-seed meal) is used in France to some extent as a substitute for cotton waste for packing the axle boxes of railway cars, etc. It is claimed by the best dairies and stock growers here that cows fed with the meal show an improvement in the quantity and quality of their milk, while the beef from cattle fattened principally on the meal is of excellent quality.

With regard to the other by-products of the cotton-seed industry, the lint in France is used in the manufacture of paper of excellent quality. The hulls are ground with the meal for fodder, and the residues from the clarifying of the oil (cotton-oil soap stock), palmitin, etc., are used in the manufacture of soap. This district seems to be supplied with cotton-seed meal cake, etc., from Dunkirk and other seaport places, at which points, it is said, there are several factories. None, so far as I am aware, is manufactured in this district. The price of cotton-seed meal cake in Rheims at retail is 17.50 francs, or $3.38 per 100 kilos (220 pounds), but when flax-seed meal is mixed with it the price is $4.15 per hundred kilos.

USE AND MANUFACTURE OF OILS.

It is claimed that cotton-seed oil is used as an adulterant, or as substitutes for olive and almond oil and lard in France. It is said also that it finds application here in the treatment of leather, in dressing wool, and as a lubricator and an illuminant. There is no country probably where "salad oil" is used so extensively as in France. The peasants, however, are noted for being able to produce and manufacture their own oil for table use out of several articles they grow themselves. Colza is an oil-producing grain that flourishes throughout France. Navette and oeillette, and the pavot (poppy), the two former being two different varieties of the pink, are used in the manufacture of edible oil, as well as such products as peanut root, flaxseed, rape seed, etc. The value of the olives produced in France in 1904 (the latest report issued), according to the report of the French minister of agriculture, was 23,782,939 francs, or $4,580,457. Oil, nearly all of which is under the head of olive oil, to the value of $4,797,760 was imported into France from other countries, $2,834,875 of which came from Tunis and nearly $900,000 worth from Algeria.

OIL ADULTERATION AND PRICES.

This consular district produces no olives, but much oil is made here by individuals that passes for olive oil in the local trade. Colza, navette, and oeillette are produced here as well as in other parts of France. In 1904 the crop value of the three articles named, from all of which oil is made, was colza (a kind of grain), $2,497,739; oeillette (pinks), $400,431; navette (a plant like pink), $291,548.

When the above is manufactured into oil its value, of course, is increased. It is not likely that the individuals who make oil for their

own use and the small neighborhood manufacturers blend these products with foreign substances, but it is altogether likely that the speculators and dealers who buy from every direction do mix in every way possible to disguise. It is easier, however, for firms so disposed to produce imitations of olive oil and market it as the genuine article when located in the south of France in or near the olive belt. It is the custom of scores of these firms to send circulars to families in other parts of France praising their own production as the dependable article and offering to sell direct to consumers.

Oil in the retail shops here is usually kept in barrels and sold in bulk to the families who bring their own vessels. It sells as low as 5 cents a quart, and the family too poor to afford meat will have the inevitable "salad oil" and cheap wine at each meal except breakfast. The high-class stores guarantee their olive oil, which is in pint and half-pint bottles and quite expensive, the price varying according to the brand.

It is safe to say that cotton-seed oil comes into competition with all the different oils named above, more or less. That it is used quite extensively as a substitute for olive oil in France is generally conceded.

LYON.

OIL AND SEED CAKE MARKET.

Consul John C. Covert, of Lyon, reporting under date of March 13, says that there is not one cotton-seed oil factory in Lyon or a wholesale establishment where details can be obtained. He continues:

A number of small feed stores sell cotton-seed oil cakes, which they receive principally from Marseille and Havre, the two great ports of entry of France. Most of it comes from Marseille. At the oil exchange in this city I was informed that 176,368 pounds of cotton-seed oil is consumed in Lyon and the surrounding country annually. Another authority estimates it at 220,000 pounds. It is used in the place of olive and colza oil in cooking and in salads. It is generally sold as pure olive oil, but I am informed on good authority that where olive oil is called for and a fair price is paid the pure article can always be had.

At the general office of the agricultural societies of southeastern France, in this city, I was told that the annual consumption of cotton-seed cakes in this part of France aggregates 44,092 pounds. The annual consumption of copra cakes is much larger, having aggregated last year 440,920 pounds.

There is a slight consumption of corn cake, called gluten de maize, but the quantity is unknown.

LA ROCHELLE.

WOULD SELL IF PROPERLY REPRESENTED.

Consul George H. Jackson, of La Rochelle, is unable to obtain figures. His report, dated February 22, is as follows:

All the cotton-seed products which reach this district come from Havre, Marseille, or from German or Belgian ports. This district does not manufacture any oils for human consumption.

The fertilizers used here are manufactured exclusively from Florida phosphates and Chilean nitrate. It should be noted that there are certain summer seasons when we have so little water in this region that pasturage is completely destroyed and the crops of hay and other vegetables are very sensibly diminished. Under these conditions the use of cotton-seed products would easily come into vogue should the goods be properly presented.

GERMANY.

PLAUEN.

MARKET CONDITIONS IN SOUTHWESTERN SAXONY.

Consul Carl Bailey Hurst submits the following report, dated March 4, on the use of cotton-seed products in Saxony, with special reference to the Plauen consular district:

For some years cotton-seed oil has been used in this section of southwestern Saxony, comprising the consular district of Plauen. The qualities of the oil are fully recognized by the trade, and its limited consumption here is a temporary condition accounted for by the lower price of certain competing oils of domestic manufacture. Cotton-seed cake, as such, is not found as yet on the local market. On the other hand, cotton-seed meal is being steadily taken up, and a fine future seems to await its wider adoption in this region. Although textile manufactures are the engrossing industry of the inhabitants, and agriculture, by reason of the rocky conformation of the country, is not so flourishing as elsewhere, there are many important farms in the neighborhood, as well as small strips of ground from which thousands of peasants derive their sustenance.

Some time ago a produce dealer in Plauen began to import cotton-seed meal and was able to dispose of a carload about every quarter. The peculiar advantages of the meal were soon demonstrated to those using it for fattening stock and increasing the output of the dairies. The small farmers are conservative, however, and it is only by personal argument, especially in pointing to the practice of others in the immediate vicinity, that sales are gradually enlarging. So true is this that there are no isolated spots in this district where cotton-seed meal is used, but, having started on an estate near Plauen, the field has almost literally extended foot by foot in all directions. Owing to the danger of feeding cotton-seed meal indiscriminately to stock, particularly hogs, the farmers, in the absence of more light on the subject, have been chary of its use, but when finally convinced of the

wonderful fattening properties of the meal, given in rightly proportioned rations, they will become steady buyers.

As there are no farms of sufficient extent to warrant ordering large consignments of cotton-seed meal for individual use, the proprietors supply their needs from Plauen, and a carload of the meal a month may be taken as a close estimate of the total amount used at the present time in this limited territory.

BREWERY MASH A COMPETITOR.

As a competing article the refuse mash of the numerous breweries is much liked here for feeding stock, and it is preferred to get the feed from the breweries in a wet condition when not too far distant from the farms. Dry mash is also used in this neighborhood. The American is whiter and is preferred to the German product. German dry mash costs about $1.19 (5 marks) for 110.23 pounds (50 kilos) and the American imported article is some 6 to 12 cents dearer. As it is difficult to gauge the value of the local beer mash, which weighs more or less according to the degree of humidity that it contains, it is sold here on a basis of the original amount of barley used. For instance, the residue of 1,322.76 pounds (600 kilos) of barley, after having been used in brewing, is sold for $8.57 (36 marks). In consequence of the high prices in the feed market rice feed has been much used lately, although containing only 24 per cent of protein and fatty matter. It is the cheapest of all feeds now offered and is employed to a large extent as a substitute for bran, which has gone up so much as to put it practically out of reach. Patent meat-feed meal is used, and lately fish feed for hogs and chickens has become popular. In consequence of the large demand the cost of this article has also risen.

CURRENT PRICES.

The current local prices for cotton-seed meal and competing feed materials plus cost of freight are as follows per long ton, except as otherwise specified:

PRICES OF VARIOUS KINDS OF FEED ON THE PLAUEN MARKET, 1907.

Kind of feed.	Protein and fatty matter.	Price per ton.
	Per cent.	*Dollars.*
Cotton-seed meal, Texas, double sieved	56 to 60	37.18 to [a] 36.65
Cotton-seed meal, German	56 to 60	36.53 to 36.89
Cocoanut cake, Ceylon, light, round		35.94
Cocoanut cake, prime English		33.08
Corn-cake meal		30.58 to 31.65
Linseed cake		32.25 to 34.27
Linseed meal		36.89
Mash, beer, dry	26 to 30	24.87
Mash, distillery		21.42 to 21.90
Meat-fodder meal, Liebig's	90	[b] 2.60
For orders of long ton		[b] 2.57
Palm-seed cake, German		28.20
Palm-seed meal		29.04
Peanut cake, A 1, extra quality, German, made of selected rufisque nuts	56 to 60	37.84
Peanut meal, prime white, ground from the foregoing cake		39.08
Peanut meal, German	52 to 56	21.42
Poppy cake, light, German		29.90
Rice-feed meal, German	20 to 24	21.42
Rice-feed meal, Rangoon	24 to 28	22.61

[a] Per ton in sacks of 165.35 pounds each.

[b] Per 110.23 pounds.

The edible vegetable oils, with which cotton-seed oil chiefly competes, are olive, palm seed, peanut, rape, sesame, poppy, cocoanut, and, in lesser amount, sunflower-seed oil, with the nonedible almond, mustard, linseed, corn, hemp, and palm. The leading greases and waxes on the local market are butter, lard, goose fat, mutton tallow, beef tallow, the vegetable Japanese wax, and the mineral cerezin. The principal brands of artificial butter here are vitello, a Dutch margarine, and palmin, presumably a preparation of which palm-seed oil is the chief ingredient, or which contains in larger proportion the palmitin properties of other fluid or solid vegetable fats. A prepared dripping in general culinary use is composed of equal parts of butter and lard, and is preferably put up by housewives when butter is cheapest. Rape-seed oil is also used in frying, and goose fat is not uncommonly taken for spreading on rye bread.

STRINGENT PURE FOOD LAW.

Formerly cotton-seed oil was used in this neighborhood somewhat for frying, but has since been replaced by other materials. Olive oil is generally bought for the table, fine Provence oil being a favorite, but as it is nearly double the price of refined Texas cotton-seed oil the American product should find a wider market, not only on account of the lower price but also by reason of its good qualities. At a small exhibition held a few years ago in this neighborhood pure cotton-seed oil was shown and was very favorably spoken of for table use. As proper advantage was not taken of this opportunity it is now scarcely to be found on the market. The pure-food laws of this country are very stringent as to adulterations, and it is not permissible to mix an olive oil that is sold as such with another oil. If cotton-seed oil or some other edible oil is sold under some trade name, the kind of oil or the various blended ingredients must be described on the bottle.

SOAP INDUSTRY.

In soap making the sharpest competing article of cotton oil is corn oil, which has rapidly advanced during the last two or three years. There are some small soap factories in this district and more cotton-seed oil would be used if the oil were lower in price. Cotton-seed oil is mixed here with linseed oil, as thus the product freezes less readily. In summer the oil is used in larger proportion in the making of soft soaps, as then no danger of frost exists. A great deal of soap is used in the local textile industries and the cotton-seed oil could be employed to a certain extent in them if carefully combined. When cotton-seed oil is imported into Plauen it is usually denatured, as the duty is some 60 per cent less than for the oil when it is to be used for edible purposes. The white, refined American oil, though dearer, is preferred. In the preparation of the yellower foreign varieties the seeds have not been decorticated, so that hulls and kernels are crushed together.

The soap makers prefer hog fat to vegetable oils for local wants, but do not use it exclusively on account of the high prices. The animal fats under the soap-making processes now employed seem to have a softer effect on the washing of textiles, particularly the white laces and embroideries made in such great quantities in this neighborhood. As glycerin has advanced some $15 a ton since last

autumn and cotton-seed oil has not advanced in proportion, there seems to be an opportunity for the larger use of the vegetable oil. Sunflower oil has been used considerably in the past in the manufacture of toilet soaps, and is a substitute for palm-seed oil. The sunflower oil has been imported chiefly from Russia, but the trade in that country being at present unsettled there has been very little import in this line recently, needs being covered by other oils, among which cotton-seed oil takes a principal place.

RATES OF DUTY.

There is no German duty whatever on pure olive oil imported in barrels from the countries with which Germany has special tariff treaties. On olive oil coming from other countries a duty of 10 marks ($2.38) is levied per 100 kilograms (220.46 pounds), or, if denatured, 2 marks ($0.476) for the same quantity. If imported otherwise than in barrels, the duty on pure olive oil coming from treaty countries is 10 marks per 100 kilograms and from other countries 20 marks. On cotton-seed oil the duty is invariably 12.50 marks ($2.97) per 100 kilograms, or, if officially denatured, 5 marks ($1.19) for the same amount when imported in barrels. Other oils imported in barrels pay, per 100 kilograms (220.46 pounds), as follows:

Colza and rape, $2.86; linseed, $0.952; beech, peanut, poppy, brazil, sesame, and sunflower, $2.38; sesame oil, officially denatured, $1.19; wood oil, $0.95; castor oil, $0.476; other vegetable oils, $2.14, officially denatured, $0.95. If imported otherwise than in barrels a duty of $4.76 per 100 kilograms is payable for all the foregoing oils with the exception of castor oil, which is admitted at the rate of $0.476 per 100 kilograms, if imported in tin receptacles weighing with the tin at least 15 kilograms.

Vegetable fats pay per 100 kilograms as follows: Cocoa butter and cocoa oil, $8.33; oil of mace and bayberry oil, when in butter form in barrels $2.14, and in other receptacles $4.76; cotton stearin, raw, $2.97; palm oil, cocoanut oil, and other vegetable fats not edible, $0.476; oleic acid, $0.714. The reason for the discrimination in duty between olive oil and cotton-seed oil to the advantage of olive oil may be found in the reciprocal concessions between Germany and those countries with which Germany has formed tariff treaties.

COTTON-SEED OIL PROGRESSING.

Cotton-seed oil is used in some small quantity here by druggists in compounding liniments, although not official in the German pharmacopœa. It is coming gradually into use in the trades and in the arts, as its qualities are becoming better known. It should be remembered that while many of the competing oils have been in use here for centuries the first experiments with cotton-seed oil in Germany were made only about fifty years ago with Egyptian cotton seed pressed in this country. The oil is making its way surely, but would progress more rapidly if the price could be brought below that of some of the competing oils. For illuminating purposes it has not yet been tried here. Any supply for local use is nearly always drawn from the wholesalers having depots in the free zones at German seaports. As will be noticed, the denatured oil pays considerably less

than the refined oils, but American exporters should not attempt to denature the oil for the German market, because the denaturing is done officially under German supervision before being freed from the bonded warehouses.

IMPORTS AND EXPORTS OF VEGETABLE OILS AND FATS.

The following table shows the state of trade in the leading vegetable oils and fats in Germany during 1906, giving the quantities in long tons, average prices, and chief countries of origin and of destination:

IMPORTS AND EXPORTS OF VEGETABLE OILS AND FATS IN 1906.

IMPORTS.

Kind.	Quantity.	Average price per long ton.	Chief countries of origin or destination.
Vegetable oils:	*Long tons.*	*Dollars.*	
Cotton-seed oil	32,877	75.80	Great Britain, 6,514.6 tons; United States, 25,394.3 tons.
Castor oil	4,138	91.39	Belgium, 1,776 tons; France, 487.3 tons; Great Britain, 1,760.1 tons.
Colza and rape seed oils.	124	66.64	France, 14.7 tons; Great Britain, 75.5 tons.
Corn oil (including hoof and bone oils).	2,577	102.82	Belgium, 110 tons; United States, 2,120.9 tons.
Linseed oil	2,021	76.16	Great Britain, 166.2 tons; Holland, 1,665.4 tons.
Olive oil, pure	5,871	178.50	France, 1,626.9 tons; Greece, 1,155.8 tons; Italy, 2,502.5 tons; Turkey, 390.1 tons.
Olive oil, residuary	4,712	85.68	France, 98.7 tons; Greece, 204.3 tons; Italy, 4,320.5 tons.
Peanut oil	986	116.14	Belgium, 277.3 tons; Holland, 677.4 tons.
Poppy, beech, niger, and sunflower oils.	75.5	171.36	Belgium, 20 tons; France, 51.1 tons.
Sesame oil	1,263	81.87	Belgium, 364.9 tons; France, 628.6 tons; Holland, 220.4.
Wood oil	1,854	105.67	China, 1,788.7 tons.
Vegetable fats:			
Cocoa butter	10.4	542.64	Holland, 10.3 tons.
Cocoanut oil and by-products.	2,434	104.72	Belgium, 853 tons; British India, 211.3 tons; Ceylon, 1,268.1 tons.
Cotton stearin	739	95.20	United States, 737.3 tons.
Oil of mace	17.3	476.00	Italy, 8.8 tons; Turkey, 5.3 tons.
Oleic acid	14,015	70.45	Belgium, 6,824.6 tons; France, 1,731.9 tons; Holland, 1,475.6 tons; United States, 2,567.1 tons.
Palm oil, palm butter, and palm fat.	8,469	91.39	British West Africa, 7,279.7 tons; Great Britain, 692.3 tons.
Palm-seed oil and palm-seed fat.	222	98.06	British West Africa, 153.8 tons; Great Britain, 45.9 tons.
Shea butter and other vegetable tallow.	353	128.52	Belgium, 88 tons; British West Africa, 82.6 tons; China, 107.6 tons.

EXPORTS.

Vegetable oils and fats:			
Cocoa butter	2,118	528.36	Great Britain, 141.8 tons; Holland, 454.2 tons; Switzerland, 532.5 tons; United States, 462.1 tons.
Cocoanut oil and by-products, shea butter.	4,037	148.75	Austria-Hungary, 1,455.9 tons; Great Britain, 709.4 tons; Holland, 303.7 tons; Switzerland, 367.5 tons.
Colza and rape seed oil	5,638	105.91	Great Britain, 4,410.8 tons.
Linseed oil	119	102.34	Brazil, 16 tons; Chile, 9.1 tons; Switzerland, 23.9 tons.
Oleic acid, olein	198	101.63	Austria-Hungary, 66.6 tons; Belgium, 35.7 tons.
Palm oil, palm butter, and palm fat.	43.5	119.00	Switzerland, 25.6 tons.
Palm-seed oil and palm-seed fat.	19,143	122.57	Austria-Hungary, 3,982.3 tons; Great Britain, 7,686.8 tons; Switzerland, 1,524.4 tons; United States, 3,270.6 tons.
Sesame, peanut, and beech oils.	983	154.70	Denmark, 526.2 tons; Holland, 142.7 tons; Switzerland, 133 tons.

The chief artificial fertilizer used in this district is the Thomas phosphate, a pulverized Thomas slag. It seems to meet the conditions of the soil in this neighborhood, although there is no reason why cotton-seed cake should not be used alone where the nature of the ground permits, particularly for rye and barley crops, as well as in combination with other ingredients. A fact not fully appreciated by the farmer here is that farmyard manure resulting from feeding cattle cotton-seed meal possesses the richest possible fertilizing qualities. Even where the meal is made from undecorticated seed it is not inferior to the manure of cattle fed with rape seed, linseed cake, and malt dust. If the cotton-seed meal or cake is made of decorticated seed, the manure is at least 50 per cent more valuable than from any other of the feeds mentioned. For the reason that rape and flax are largely grown in the country and are substitutes for cotton seed, they become formidable rivals to the imported seed cake. The cotton-seed cake, well powdered, is recognized by advanced agriculturists as a superior fertilizing agent, but its price bars at present its general adoption, although there is no German duty on its importation. Kainit, produced in Germany, is employed for root crops, with other fertilizing materials. When the deficiencies of the soil demand, sulphate of ammonia is used here as a powerful and readily soluble fertilizer, but of concentrated manures the Thomas phosphate is most used. Indian bone dust is employed, and lately a fish guano has been introduced and is taken in increasing quantities.

IMPORTATION OF OIL SEEDS.

The mills in this country that express oils use foreign seeds and kernels very largely. It has been stated that in 1906 Germany imported $40,460,000 worth of oil-yielding seeds. The home oil-crushing industry is growing rapidly, and dutiable material used in manufacture can be imported directly to the mills duty free and utilized under official supervision until the oil is either exported or sold to the domestic trade. There are special provisions for the operation of these mills and the mill owners endeavor to make as much oil as possible to cover the needs of the country, and thus be independent of foreign markets. The German colonies are expected to supply increasing quantities of palm seed, copra, and peanuts.

The amounts, in long tons, of the principal oil-yielding seeds, nuts, and other oleaginous vegetable material imported into Germany during 1906 for use in the domestic oil mills may be summarized as follows:

IMPORTS OF OIL-YIELDING SEEDS IN 1906.

Article.	Quantity.	Average price per ton.	Chief countries of origin.
	Long tons.	*Dollars.*	
Cotton seed	15,282	30.94	British India, 1,021 tons; Egypt, 9,817 tons; United States, 3,617 tons.
Castor beans	3,584	47.60	British India, 3,002 tons; Dutch India, 220 tons.
Colza and rape seed	64,345	54.74	British India, 46,157 tons; European Russia, 5,182 tons; Roumania, 7,319 tons.
Copra	39,127	76.16	British India, 5,683 tons; Ceylon, 4,872 tons; Dutch India, 21,968 tons.
Cyperus root, beechnuts, and bayberry.	228.3	59.50	Belgium, 97.4 tons; France, 20.8 tons.
Flaxseed	324,190	52.36	Argentina, 166,667 tons; British India, 40,350 tons; Russia, 41,017 tons; United States, 67,811 tons.
Hemp seed	6,681	45.22	European Russia (duty free), 6,286 tons.
Madia, bombax, and niger seed.	147.5	35.70	European Russia, 105.6 tons; Great Britain, 29.8 tons.
Mustard seed	4,183	64.26	British India, 364 tons; European Russia, 2,142 tons; Holland, 721.3 tons.
Palm seed	116,495	64.26	British West Indies, 109,137 tons.
Peanuts	18,248	47.84	British India, 2,977 tons; French West Africa, 8,873 tons.
Poppy and sunflower seed	24,028	56.52	British India, 18,435 tons.
Sesame seed	49,935	61.88	British India, 28,484 tons; China, 18,419 tons.
Sesame (German), radish, and cress seed.	2,339	42.84	European Russia, 2,236 tons.

IMPORTS AND EXPORTS OF OIL CAKE.

The imports and exports during 1906 of oil cake of all kinds, which are not separately specified in the latest available statistics, were 461,480 long tons, at an average value of $3.09 (13 marks) per 220.46 pounds (100 kilograms), as shown in the following table:

IMPORTS AND EXPORTS OF OIL CAKE OF ALL KINDS IN 1906.

Imported from—	Quantity.	Exported to—	Quantity.
	Tons.		*Tons.*
United States	158,886	Denmark	36,022
Russia in Europe	152,537	Great Britian	31,279
France	33,646	Netherlands	30,810
British India	24,367	Sweden	22,037
Austria-Hungary	23,206		
All other countries	68,838	Total exports	120,148
Total imports	461,480		

PRICE AND USE OF LINTERS.

Linters are not at present employed in the industries of this particular district. Not far from here, however, vicuna cloth is manufactured in which linters are used when the price does not render them inapplicable for the grade of cloth to be made. Linters are generally taken for vicuna fabrics as a substitute for shoddy. For the reason that the supply of shoddy is limited, linters, even at a higher price, come into necessary consideration. During 1906, 20,871 long tons of linters, at an average price of $16.66 (70 marks) for

220.46 pounds (100 kilograms), were imported into Germany, of which 9,917 tons came from the United States, 3,941 tons chiefly from British India, 2,756 from Great Britain, and 740 tons from France. The current saying here that price is the sole criterion as to the merits of linters, irrespective of the country of origin, can be at least challenged, pending a fuller investigation of this question, on the basis that the greatest percentage of the total amount of linters imported during the year just closed came from America.

AIX LA CHAPELLE.

DISTRUST OF COTTON-SEED PR[illegible]

Consul Pendleton King, writing March 12 from Aix la Chapelle, says:

Cotton-seed oil is not at present sold in this consular district as an article of food, but American cotton-seed oil is extensively used in the manufacture of silver soap of a butter-like consistency. The present price is 62 cents a gallon for pure American oil and 60 cents for good Indian cotton-seed oil, barrel and duty of 10 cents a gallon included.

Customs officers estimate the amount of American cotton-seed oil used in this district at 150,000 gallons a year, most of which comes through Antwerp and Hamburg. The Indian oil comes from Hull, England. A small quantity of the best American oil is used for the manufacture of margarine butter—perhaps 15,000 gallons a year.

Cotton-seed meal and cakes (mostly meal) as food for dairy cows are sold here at $37.50 per 1,000 kilograms. The amount consumed is estimated at 250 carloads of 10,000 kilograms each, nearly 2,500 tons; but much of this meal has been mixed with meal from India before arrival. It is not possible to say how much of it comes from the United States, probably not more than one-half. It comes via Antwerp, Rotterdam, and Hamburg. Cotton seed, cotton-seed meal and cakes are free from duty.

Cotton-seed linters are not used in this district.

PRODUCTS THAT COMPETE.

Cotton-seed oil as an article of food was driven out of this market by a mixture of East Indian sesame and peanut oil, selling at 78 to 90 cents a gallon wholesale, or 86 cents to $1.12 retail. Merchants estimate that the quantity of these oils used in this district as table and salad oil is 600,000 quarts a year.

Cotton-seed meal and cakes (mostly meal) as food for dairy cows of meals and cakes, all by-products of the oil and soap factories. These are mostly manufactured in Germany, but they come also from Holland, Russia, Hungary, and Africa. The chief competitors in this consular district are shown in the following table:

ARTICLES THAT COMPETE WITH COTTON-SEED MEAL AND CAKES.

Article.	Price per metric ton.[a]
	Dollars.
Linseed meal and cake	35
Peanut-shell meal[b]	16 to 34
Cocoanut pulp	32
Indian rape-seed cake	33
Turnip-seed pulp cake	33
Fattening mixtures, "Gundol," for horses and cattle	39 to 41
Brewery malt (dried)	28
Distillery rye residue (dried)	30

[a] A metric ton equals 2,024 pounds. [b] Imported from East Indies.

Brewery malt and distillery rye residuum are sometimes adulterated with lime and thereby made injurious to cattle, and the quantity used is diminishing. The value of the "concentrates" above mentioned, mostly by-products of the oil and soap industry, is estimated at $1,000,000 a year. The demand for these foods fluctuates with the root crops and with the prices of bran and barley. In 1906 the root and potato crop was good, and there was less demand for the artificial foods than in 1905.

OBJECTIONS TO AMERICAN PRODUCTS.

I am informed that American cotton-seed oil was introduced here some twenty years ago and soon became so popular that it largely took the place of the turnip-seed oil and poppy-seed oil at that time used as a substitute for olive oil, especially by the poorer classes. It was sold at 80 to 85 cents a gallon retail, as a table oil. In later years it has been almost entirely superseded by East Indian peanut and sesame oil. One explanation of this is said to be that the American cotton-seed oil loses its color and brightness in cool weather, and in cold weather becomes thick like sirup. The East Indian peanut and sesame oil (sold as Speiseoel, a table oil) is manufactured from Indian seeds in the large oil mills along the Rhine, Main, and Neckar; especially at Ruhrort, Oberursel, Mayence, Mannheim, and Heilbronn. These cities mostly supply western and southern Germany. The oil sells from 76 cents to $1.05 a gallon wholesale; 82 cents to $1.15 retail.

One important reason for the success of the German table-oil manufacture lies in the expert blending and mixing of the sesame, peanut, walnut, poppy, and other oils, which improves the oil not only in taste but in its color and keeping properties. The matter of blending should be carefully considered by American producers hoping to gain the German market.

American cotton-seed meal and cakes were introduced here some fifteen years ago and became very popular as feed from the increased amount of milk they produced. But later the Indian cotton-seed and palm-kern cakes became strong competitors for the market, because

they were sold from $2 to $3.50 less a ton. Moreover, the American meal and cakes were often adulterated with Indian and other meals, containing impurities and even chemical poisons, which caused the death of many dairy cows, consequently many farmers returned to bran, barley meal, roots, and turnips. The distrust as to the purity of cotton-seed meal and cakes and as to the honesty of the dealers has caused the farmers to order almost entirely through the Rhine Farmers' Union at Neuss, where every carload is thoroughly tested by agricultural chemists, and a guaranty is given with each filled order.

HOW TRADE MAY BE PROMOTED.

Some think that an excellent business for American cotton-seed meal could be built up if the dealers would establish a standard brand, guarantee purity, sell in lead-stamp closed sacks, stamp the sacks with the name of the producer, and send with each sack an analysis of the contents.

The farmers of the Rheinland and Westphalia are mostly organized into the Rhine Farmers' Union and have great confidence in the recommendations of the head offices at Neuss on the Rhine and Münster, Westphalia. It would be a good way of introducing standard cotton-seed products to sell them through the Rheinischer Bauernverein, Neuss am Rhein (Abteilung Kunstfutter), and the Westfälischer Bauernverein, Münster, Westfalen (Abteilung Kunstfutter).

ANNABERG.

SMALL MARKET AND SMALL POSSIBILITIES.

Consul George Nicholas Ifft, of Annaberg, writes as follows, on March 6, of the market in his district:

Cotton-seed oil is barely known to the trade in this consular district and scarcely at all among the people. A few of the larger dealers offer it for sale, but sell very little of it. They furnish quotations of first quality cotton-seed oil in bulk at 120 to 160 marks per 100 kilograms ($28.50 to $38.08 per 220.46 pounds), and a poorer grade at 10 per cent cheaper, and offer it for sale at retail at 38 to 48 cents per 2.2 pounds. Cotton-seed cake or meal and cotton-seed linters are not known. There are neither importers nor wholesale dealers in the Annaberg district and statistics for the district as to the amount of cotton-seed oil or of such oils and greases as it might compete with are not obtainable.

A considerable amount of vegetable oils, vegetable butters, and margarines is used as substitutes for lard and butter, and some brand thereof is on sale in all the shops. These shops are almost without exception very small concerns and are scattered throughout the hundred or more mountain villages of the district. The business of each individual shop is trifling. Supplies are bought from the wholesale dealers at Chemnitz or Leipzig or from the importers at Hamburg or Bremen. Butter is expensive and retails at average prices of 2.60 to 3 marks per kilogram; lard at an average price of 2 marks per kilogram. Half a dozen brands of margarine are on sale, all more

or less similar in composition, retailing at 1.60 to 1.80 marks per kilogram, and several brands of so-called "palm butter," which sell a shade cheaper, at 1.40 to 1.50 marks per kilogram. They are much used for cooking, as substitutes for butter, lard, etc. Most of them are German products, but some are made in Holland or Belgium.

Olive oils on sale are almost entirely of French origin, and in bulk sell at 140, 150, and 180 marks per 100 kilograms, according to quality. They retail at 1.80 to 2.20 marks per kilogram. These, when labeled as such, must be pure. Much larger quantities of so-called "table oils," which are a shade cheaper, are sold. These are almost invariably adulterated. Italian and Spanish olive oils are sometimes, but rarely, seen in the shops.

Linseed oil and poppy-seed oil are also used for cooking and as table oils. The former is quoted at 80 to 100 marks per 100 kilograms and the latter at 120 marks per 100 kilograms. The linseed oil sold here is entirely a German product, while the poppy oil is partially of German and partially of Dutch origin. Some flax is raised in this district and there are half a dozen linseed-oil mills. All are small concerns and handle only the local seed crop.

The only oil cakes known in this district are linseed cakes and are in some demand as stock feed. They retail at from 40 to 50 pfennigs per kilogram (9½ to 12 cents per 2.2 pounds). The demand is small.

CONDITION OF THE PEOPLE.

Annaberg-Buchholz is the only city of any size in the district. With its immediate suburbs, it has a population of about 35,000, and a half dozen villages, all within 2 miles of the Annaberg market square, bringing the population within such radius up to about 50,000, or more than one-fourth the entire population of the district, which lives in small towns and villages scattered over a mountainous section of about 300 square miles in extent. The land is not highly productive. A little wheat, rye, oats, barley, flax, and some potatoes are raised, and the forestry products furnish means of livelihood for a small per cent of the people. The population is many times what the resources of farm and forest will support, and the greater part of the people are engaged in the manufacture of dress trimmings, braids, laces, fringes, beaded novelties, etc., for the export trade, the raw materials for which are bought from wholesalers in other parts of Germany. Much of the work is done in the homes, the labor of the entire family being necessary to eke out a scanty living.

The large proportion of "house industry" prevents anything like effective organization among either the workers or the manufacturers, thus keeping both wages and prices low. Overpopulation increases competition and still further reduces prices of product and at the same time wages. Practically all foodstuffs—meat, eggs, butter, vegetables, fruits, etc.—must be brought from a distance, and the cost of transportation is high.

These conditions create the demand for cheap substitutes for butter, lard, etc., but the demand is small and will always remain so. In my opinion the demand for cotton-seed oil could be considerably increased throughout this district by proper advertising; but even if it displaced all other vegetable oils and bogus butters the total would be a small item.

BARMEN.

COTTON-SEED OIL AND CAKE EXTENSIVELY USED.

Consul George E. Eager writes from Barmen under date of March 14:

Three American cotton-oil companies are well and favorably known to the German trade and are represented in this country either by branch offices or commission houses. The largest importing firm is said to be the Holland-American Cotton Oil Company, of Rotterdam, which to some extent controls this market.

Both cotton-seed oil and meal or cakes are used extensively in Germany. The imports of oil from America between March 1 and the end of December, 1906, amounted to 50,188,600 pounds. England exported to Germany during the same period about one-quarter of that quantity, 12,697,150 pounds. The prices of cotton-seed oil are as follows: For edible oil, $14.28 to $16.66 per 100 kilograms (220 pounds), to which must be added duty of $2.98 per 220 pounds; cotton-seed oil for industrial purposes, denatured with oil of rosemary, costs from $12.85 to $13.80, with duty of $1.19, per 100 kilograms.

Linters are used in agricultural sections for the feeding of stock. They are imported from America packed loosely in sacks, because if pressed they would be liable to spontaneous combustion. They are ground into meal and pressed into cakes here in German mills. This cake is called "Leinkuchen." One firm, known as the "Netherlands Oil Mill," disposes of its cake to the neighboring towns of Suchteln, Strahlen, Cleve, Uerdigen, and Kempen. Linters are admitted free of duty.

Cotton-seed cake is imported from America and comes into competition with the German leinkuchen. Of the amount imported in 1906, 317,771,600 pounds came from America. Prices per 100 kilograms were from $3.57 to $4.76. Quotations for cakes (March 14) are $34.27 per 1,000 kilograms at Neuss mills.

Cotton-seed oil comes in competition with linseed oil in the manufacture of soap. In the manufacture of margarine a mixture of 16 per cent of cotton-seed oil with sesame oil and peanut oil is permitted by law. The prices are: Peanut oil, quality "Rufisque," $23.32 per 100 kilograms; quality "Holland delfte," from $24.75 to $25.20. The duty is $2.98 per 220 pounds.

There has been a decided increase in the importation of cotton-seed products into Germany in the past few years. Owing to the production of olive oil in France and Italy being insufficient to meet the demands, it is well known that other oils, including cotton-seed oil, are largely used for mixture with the olive oil.

Several factories have been built recently for the manufacture of oil and cake from imported seed here in Germany, and it is reported that mills at Harburg, Uerdingen, and Bremen are already in operation and importing seeds from America and Egypt.

BERLIN.

LARGE IMPORTATIONS BY THE EMPIRE.

In a report dated at Berlin, April 11, Consul-General A. M. Thackara points out that notwithstanding Germany is one of the greatest producers of oil in Europe, to supply the demands of the home consumption for food, industrial, and agricultural purposes, oil cake and meal have to be imported annually. The consul-general says:

According to American statistics, in 1906 Germany was our largest customer for oil cake and oil-cake meal, with a value of $5,168,155, while in cotton-seed oil this country ranked third, with $1,444,905, the Netherlands and France being first and second, respectively. There are no statistics published regarding the consumption in Germany of cotton-seed oil, cotton-seed cake, and cotton-seed meal, but in 1905 the German imports were 12,334 tons of cotton seed, 58,564 tons of cotton-seed oil, and 583,107 tons of oil cake and meal of different kinds, cotton-seed cake and meal not being specially mentioned. The exports of cotton seed and cotton-seed oil during the same period were merely nominal, and those of the various kinds of oil cake and meal, including cotton-seed cake and meal, 180,439 tons.

EXTENT OF THE TRADE.

The quantity and values of cotton-seed oil imported into Germany in barrels during the past three years, pure and denatured, together with the part which the United States shared in the trade, are shown in the following table:

IMPORTS OF COTTON-SEED OIL INTO GERMANY, 1904–1906.

Description.	1904.		1905.		1906.
	Quantity.	Value.	Quantity.	Value.	
	Tons.	*Dollars.*	*Tons.*	*Dollars.*	*Tons.*
Pure	20,963	1,811,180	29,318	2,121,770	31,413
Denatured	18,670	1,438,472	29,246	1,986,824	25,175
Total	39,633	3,249,652	58,564	4,108,594	56,588
From United States.					
Pure	20,396	1,762,092	29,019	2,100,273	.....
Denatured	11,424	918,264	22,330	1,529,941	.....
Total	31,820	2,680,356	51,349	3,630,214	46,564

From the above figures it will be seen that the United States furnished the great bulk of the German imports of cotton-seed oil, or an average of about 80 per cent of the toal. Great Britain came next, while a certain amount, but of no great importance, was received from China. The exports of the product were insignificant.

As of possible interest and as indicating the extent of the German oil trade and industry, in the following tables are given the imports and exports of oils, oil cake and meal, oil seeds, and fruits for the

years 1904 and 1905, the latest years for which statistics are available at this time:

IMPORTS AND EXPORTS OF OILS, OIL CAKE AND MEAL, AND OIL SEEDS, 1904 AND 1905.

Article.	1904.		1905.	
	Imports.	Exports.	Imports.	Exports.
	Tons.	*Tons.*	*Tons.*	*Tons.*
Oils:				
Fatty oils, except edible, in bottles	22.5	114	22.5	176
Edible oils in bottles	332.0	101	316.0	145
Olive oil in casks	3,579.0	159	2,888.0	129
Linseed oil in casks	4,456.0	49	3,355.0	126
Oleic acid refuse oil	16,729.0	244	20,632.0	145
Denatured olive oil in casks	8,948.0	.....	5,389.0	.....
Palm oil, palm butter	12,623.0	240	9,226.0	96
Palm-nut oil, cocoanut oil, etc	6,238.0	41,662	4,358.0	37,650
Rape-seed oil in casks	198.0	8,365	161.0	7,326
Fatty oils not specially mentioned	7,146.0	389	7,603.0	384
Oil cake and meal	558,558.0	198,204	583,107.0	180,459
Seeds:				
Peanut	40 145.0	.....	22,661.0	.....
Poppy	33,612.0	181	34,988.0	57
Rape, mustard, and radish	133,204.0	11,706	160,959.0	4,540
Sesame	51,313.0	.....	46,489.0	.....
Dotter, sunflower, and other, not specially mentioned	1,742.0	25	2,251.0	27
Cotton	17,079.0	.....	12,334.0	10
Linseed	462,722.0	13,505	353,482.0	5,318
Palm kernels, copra butter beans, elipee stillengras, etc	199,511.0	1,505	210,147.0	3,706

USES OF COTTON-SEED OIL.

In its pure state cotton-seed oil is used in the manufacture of compound lard and margarine, for pharmaceutical and culinary purposes, and to some extent as a substitute for olive oil for the table. What amount is mixed with olive oil and sold as such would be difficult to determine, as the German food laws, like our own, are very strict, and dealers are bound to guarantee the oil they sell to be unadulterated and unmixed. That the German consumer does not always receive olive oil, however, is clearly shown in the following extract from the annual report for 1905 of the Association of Senior Merchants of Berlin, one of the leading commercial organizations of this city:

Our German edible oils, as well as those of foreign origin, including peanut and sesame oils, compete in the market with olive oil. There is still a demand for the finer qualities of the latter, but the inferior qualities are replaced by the above-named edible oils. The layman prefers them on account of their being flavorless, while the small dealers, hotel and restaurant keepers buy them for their great cheapness. The public thinks it is getting olive oil or Provence oil, but receives only vegetable oil substitutes.

The same report, speaking of oil made from peanuts, states:

The demand for the product this year was still greater than the previous year, and its popularity as an edible oil is still growing. Although it has long ago been proved that it is as good in quality as olive oil and much cheaper, yet it has not yet been accepted in the German Pharmacopœia, and therefore may not be used by the druggists. In the interest of greater cheapness of pharmaceutical products and for the benefit of the German oil producers, it would be desirable to change the regulations so as to permit the druggists to avail themselves of the peanut oil in preparing their medicines.

Technical or denatured cotton-seed oil, together with denatured olive, groundnut, and sesame oil, is used almost entirely for soap-making purposes. It is also used with other fatty oils to a small extent for the manufacture of "Schmelzen" for the wool spinners.

The prices of cotton-seed oil during the past year varied considerably, for March and April delivery, 1907, the ruling prices at Hamburg were $13.57 to $13.68 per 100 kilograms (220.46 pounds) for white American oil and $13.23 to $13.45 for yellow oil; English oil, $12.61 to $12.85. The above prices are on the quay or in warehouse without duties, subject to a discount of 1 per cent for immediate payment. In the manufacture of margarine cotton-seed oil comes into competition with sesame, olive, and groundnut oils. America undoubtedly still produces the finest qualities of cotton-seed oil—especially is this true of the yellow oil—but one of the largest local manufacturers of margarine and compound lard informs me that in the past two years the German oil has improved greatly in quality, and that its use in the preparation of food products is continually increasing. In the soap industry cotton-seed oil has to compete with cocoanut oil, palm oil, palm-kernel oil, rape-seed oil, and linseed oil.

CAKE AND MEAL.

Cotton-seed cake and meal are used for feeding cattle. Cotton-seed linters are chiefly used by spinning mills for manufacturing inferior goods and by powder factories for making hunting powder and gun cotton. There are no statistics which would indicate the imports of linters into Germany, as they are classed under the general head of cotton waste (Abfalle), the imports of which in 1905 were 55,164 tons, of an average value of 7 cents per pound.

Cotton-seed cake and meal mainly compete with groundnut, sesame, cocoanut, palm, and linseed cake, which are largely manufactured in Germany and are also imported from Russia and South America and lately from India; also with the different cereals usually employed for fattening purposes.

CUSTOMS DUTIES.

The duties on cotton-seed oil, cake, meal, and the principal competing articles imported into the German Empire are as follows, the duties in each case being for 100 kilograms (220.46 pounds):

Cotton-seed oil, in barrels, $2.97½; in receptacles other than barrels, $4.76; officially made unfit as an article of food, $1.19.

Rape-seed oil, in barrels, $2.86.

Linseed oil, in barrels, 95 cents.

Beech-mast oil, groundnut oil, poppy-seed oil, niger oil, sesame oil, and sunflower oil, in barrels, $2.38; in other receptacles, $4.76.

Sesame oil officially made unfit for food, $1.19.

Olive oil, pure, in barrels, $2.38 (Italian oil free); in other receptacles, $4.76; (Italian oil, $1.38); made unfit for consumption, 47.6 cents.

Lavat and sulphur oils obtained from the kernels, husks, etc., of olives by treatment with water or bisulphide of carbon, 47.6 cents (Italian oil free).

Palm oil, palm-nut oil, cocoanut oil, and other vegetable greases, shea butter, Malabar tallow, not intended for food, 47.6 cents.

Cocoa butter, cocoa oil, $8.33.

Nutmeg butter (nutmeg balsam), laurel oil of a buttery nature, in casks, $2.14; in other receptacles, $4.76.

Cotton stearin, $2.97½; for the manufacture of soap or candles, with certificate of permission and under control or officially denatured, $1.19.

Vegetable tallow intended for food will pay duty as margarine, $4.76.

Oleic acid (olei), oil dregs, 71.4 cents.

The Italian olive oil by commercial treaty with Germany being admitted free of duty, the oil from other countries having the most-favored-nation clause in their treaties is therefore imported free.

In 1906, from March to December, inclusive, the German imports of olive oil were 5,871 tons, of which only 40 tons paid a duty of 47.6 cents and 62 tons a duty of $2.38; the remainder was duty free. The principal countries of origin were France, 1,627 tons; Greece, 1,156 tons; Italy, 2,502 tons, and Turkey in Europe, 390 tons.

Under the present provisional tariff arrangement which exists between the United States and Germany there is no discrimination against the American cotton-seed products, as those which are not free are admitted into this country upon the payment of the conventional or treaty rates of duty.

PRICES OF COMPETING ARTICLES.

The prices of cotton-seed products and articles which enter into competition with them vary considerably, according to the market. The following, however, may be taken as the average quotations:

PRICES OF COTTON-SEED AND COMPETING PRODUCTS AT BERLIN, MARCH AND APRIL, 1907.

Article.	Price per 100 kilograms.	Article.	Price per 100 kilograms.
Oils:	*Dollars.*	Fats—Continued.	*Dollars.*
Cotton-seed—		Tallow, edible	17.14 to 18.23
White	18.68½	Butter—	
Yellow	18.45	First quality	52.84 to 56.17
English	12.85	Second quality	47.60 to 49.96
Cocoanut—		Oil cake—	
China	22.78	Linseed	[a] 36.89 to 38.06
Ceylon	20.59	Palm (German)	[a] 30.94 to 32.13
Copra	19.75	Cotton-seed	[a] 36.18 to 36.89
Linseed	10.96 to 12.14	Peanut	[a] 34.51 to 39.27
Olive	19.99 to 40.46	Rape-seed	[a] 30.22 to 30.94
Peanut	16.60	Cotton-seed meal	[a] 32.13
Sesame	15.47	Bolted, about 95 cents more; 1 per cent for cash.	
Rape-seed	16.54 to 17.14		
Palm	15.71		
Palm-kernel	17.97 to 18.80		
Fats:			
Lard—			
Hamburg	25.70 to 26.18		
American	19.52 to 22.25		
Compound	20.95		

[a] Per 1,000 kilograms.

The manufacture of products from cotton seed is an American industry which has made wonderful strides in the past few years and is one of great possibilities for the future. To preserve the outlets in foreign lands for the surplus production and thus prevent the home market from being overburdened, it is most essential that a high standard of quality be kept up and that deliveries be made not only in good condition, but exactly as ordered by the foreign buyer.

BREMEN.

COTTON-SEED MEAL HIGHLY VALUED.

The following report comes from Consul William Thomas Fee, of Bremen, under date of April 15:

Bremen, with the exception of Liverpool, is the largest cotton market in Europe. However, there are not any spinning or weaving factories here engaged in the manufacture of cotton goods. All cotton linters are therefore shipped from here to other districts, where they are used in the manufacture of gun cotton, bandaging cotton, hats, and blankets. A large quantity of linters was used for the latter purpose during the Russian-Japanese war. The annual importation of cotton-seed linters via Bremen varies from 300,000 to 350,000 bales, valued at about $16.66 per bale.

During the year 1905 (statistics for 1906 have not yet been published), 7,947 metric tons of cotton seed were imported via Bremen, valued at $175,099, of which 3,835 metric tons, valued at $83,837, came from the United States.

There are two good-sized oil factories at Bremen engaged in the manufacture of cotton-seed oil, both of which were crippled by fire during the years 1905 and 1906. The product of these factories is partly sold in the crude state to inland refineries; the balance is refined here and sold, under different names, as edible oil. German law prohibits the adulteration of articles of food, but it is well known that olive oil is heavily adulterated before exportation, at the places of production and manufacture by mixing with cotton seed, gingili, and other oils.

IMPORTS AND EXPORTS.

During the year 1905 the following vegetable oils were imported and exported at Bremen:

IMPORTS AND EXPORTS OF VEGETABLE OILS AT BREMEN, 1905.

Oil.	Imports.		Exports.	
	Quantity.	Value.	Quantity.	Value.
	Metric tons.	*Dollars.*	*Metric tons.*	*Dollars.*
Cotton-seed	2,808	197,418	8,724	326,711
Peanut	32	4,766	692	85,835
Cocoanut	678	95,151	4,162	453,491
Palm	896	47,677	877	36,133
Rape-seed	1,641	188,191	1,190	139,074
Gingili	19	2,932	3,682	461,880

The following quantities and values of raw materials used in the manufacture of edible oils and fats were imported at Bremen during the same period:

IMPORTS OF OIL SEEDS INTO BREMEN, 1905.

Seeds.	Quantity.	Value.
	Metric tons.	*Dollars.*
Cotton	7,947	175,099
Peanuts	7,369	375,899
Copra	12,488	749,929
Palm kernels	628	31,027
Gingili	6,192	384,376

Cotton-seed meal rich in albumen is valued highly as a feedstuff for cattle. The total importation of this article via Bremen during the year 1905 amounted to 52,091 metric tons, valued at $1,538,859, of which 51,601 metric tons, with a value of $1,525,353, came from the United States. The cotton-seed meal obtained from unhulled or whole seeds is often used as a fertilizer. The German farmer believes that the small fiber contained in the seed skin or hull is an irritant to the mucous membrane of an animal and becomes injurious to its health. This kind of meal, the lowest grade, is mostly imported from Egypt, Sicily, and Syria. It is of a dark-brown color, while the cotton-seed meal of hulled seed which comes from England and the United States is of a yellow color and is largely used for feeding purposes.

In Germany and in England cotton-seed oil is generally extracted by pressure, while in France the method of extracting the oil by means of bisulphid of carbon is more in use. The meal which remains when the last-named method is employed contains less fatty oils and is therefore considered to be inferior in quality. Cotton-seed meal as a feedstuff competes with peanut cake, palm-kernel cake, cocoanut cake, rape-seed cake, and gingili-seed meal, for all of which articles about the same price is paid as for cotton-seed meal, which latter, however, is decidedly preferred as a feedstuff on account of the high percentage of protein it contains.

CREFELD.

DIRECT TRADE OPEN TO AMERICAN PRODUCERS.

Consul Thomas R. Wallace writes from Crefeld, on March 25, that German mills will purchase direct from American producers of cotton seed if guaranties are given safeguarding contracts and agreements. His report follows:

Cotton-seed oil and cotton-seed cake or meal are used in large quantities in this district and surrounding country, and the by-products of the common or coarse cotton seed are utilized as fertilizers. It is estimated that there are consumed in the Rheinland about 30,000 tons of meal and 6,000 tons of cotton seed, converted into oil, meal, and fertilizer. This estimate seems large, but it is given by one of the best informed men on cotton-seed products I have met and is intended to

cover the territory included on the lower Rhine. The oil is used in soap and margarine factories, the meal for stock food, and the by-products of the common cotton seed are converted into fertilizers. The oil and cake meet with ready sale.

Cotton-seed linters are not used in this district. Millers do not care for the seed when not delinted, and this fact prevents the more general use of the common cotton seed of America. The cotton seed used by the oil mills is sea-island, Egyptian, Brazil, and India production, and is preferred in the order named. The common American cotton seed is inclosed with a heavy covering of lint that prevents its use in the ordinary oil mill. It requires special machinery to remove this husk or covering, but so far none of the mills in this vicinity are provided with such appliances, therefore they do not make use of the seed to any great extent. The by-products are utilized as a fertilizer, but the high prices prevent ready sales; therefore the miller buys but little of this class of seed. All of the millers interviewed say that if the common cotton seed was delinted its use would be largely increased. A member of the firm of one of the largest oil factories here informs me that he has in mind to install special machinery next year for the purpose of preparing the American cotton seed for use.

USE MADE OF COTTON AND OTHER OILS.

Cotton-seed oil is used by the soap makers and margarine factories. It is not used for domestic purposes, and it would require an educational campaign to convince these people of its fitness as a food product, but such facts once established would be rewarded with large sales. A new product called "palmin," used as a substitute for butter or fats for cooking purposes, is meeting with immense success. It is said to be made from the cocoanut. It resembles paraffin in appearance, is put up in paper packages of 1 pound each, and retailed at 16⅔ cents per package. The sale is increasing wonderfully.

Peanut oil comes in active competition with cotton-seed oil in the margarine factories, and is bought through agents, but I understand the seeds are crushed in Germany and the oil prepared for the market by German factories. Sesame oil is also used in the margarine factories and comes in competition with cotton-seed oil. The manufacturers of margarine say that the price of cotton oil at the present time is too high to admit its use in the manufacture of margarine to any extent. The price for the finest oil for margarine is about $20.50 for 220 pounds. I do not find cotton-seed oil used as salad or table oil in its pure state; that is, unmixed with other oils. The people do not know it is edible, and it would be difficult to introduce it as a table oil on account of popular prejudice against new foods. Should the fact be made known to them that it is mixed with other salad oils and they now use it, this prejudice would be removed.

The use of American cotton oil in manufacturing soap has decreased on account of the high price. The oil is sold to the soap manufacturers at about $13.56 per 220 pounds. Lately oil made from maize has become a strong competitor to cotton oil in this branch of trade.

The oils most generally used for salad purposes are "mohn" (poppy seed) and "sesame." Both of these are oriental products,

and because of the low price are more readily sold. Olive oil is preferred by those who can afford the price. Sesame oil is produced from the seeds of a plant of the same name, is grown in tropical and southern Africa, and in east India. The plant is an annual and grows from 1 to 4 feet high. The seeds contain up to 70 per cent oil. It is used as a table oil, and also for the same purpose mixed with olive or mohn oil. It is also used for lighting purposes, cosmetics, and in the manufacturing of soap. The seeds are shipped to Germany, France, England, and Italy. This oil is used here as a salad oil more than any other. It is also more generally used in Asia Minor for all purposes than other oils.

Mohn or poppy seed yields about 33 per cent oil by cold pressing and about 50 per cent from warm pressing. The oil has a pleasant taste and smell, burns slower than other fat oils, gives a very hard white soap, and is used a great deal as a table oil. The Latin name for this oil is "Oleum papaveris."

RELATIVE PRICES.

The following list contains names and wholesale prices of the finest table oils sold in this market. These oils are retailed by the druggist. The prices to the grocery stores are probably a little less, but the quality would not be so fine: Olive oil, $34.51 per 100 kilos (220 pounds); peanut, $27.37 to $29.75; sesame, $24.28; Mohn or poppy seed, $22.61. The quality of olive oil used in the manufacture of the finest grade of white textile soap, used by the silk dyers, costs about $19.04 to $20 per 220 pounds. A poorer quality of olive oil is used in the manufacture of green textile soap. This is extracted by means of chemicals from the remains of the former oil and costs about $12.61 to $14.28 per 220 pounds. Cotton oil could be used in the manufacture of this soap if the price permitted.

The oils used in the margarine factories and the prices of same, ranging from the poorest to the best qualities, are as follows: Sesame, $15.47 to $20.94 per 220 pounds; peanut, $17.85 to $21.90. The margarine factories are increasing each year in number and the older factories are adding to their capacity with increased production. There are now 80 factories engaged in this business in Germany alone, and their output runs into millions of pounds annually.

FARMERS PREFER LINSEED FOR FEEDING.

The principal article with which cotton-seed cake or meal comes in competition as a feed stuff is linseed cake or meal, and the linseed product has been gradually superseding the former in the last few years. The chief cause assigned for this preference by the farmers is that the demand for milk in this vicinity has increased enormously, and as the linseed-meal ration fed to the cow increases the production of milk, the amount of which is much greater than when cotton-seed meal is fed, the farmer finds it more profitable to use the linseed meal. Cattle are not fattened here as in the United States. I have never seen a fat head of cattle or display of fat beef anywhere on the Continent. The animals slaughtered would be classed as common butchers' stock in American markets, and it does not appear that there is a demand for fat beef. The cow is sold to the butcher

as soon as it ceases to be profitable as a milker, and no attempt is made to fatten it for the market. Under these conditions the farmers are using linseed meal in greater quantities in place of the cotton-seed meal formerly used. No pretense is made to raise stock in this vicinity, although each farm is well provided with milch cows. These cows are bought in the cattle districts, especially Holland, and are retained as long as they are profitable as milkers, after which they are sold and fresh cows purchased.

Another cause assigned for the decrease in the sale of American cotton seed and its products is that the quality has become poorer. This is ascribed by one party to the wet year and by another to the fact that larger quantities are used in America and the better grades retained there, while the poorer qualities are exported. The sale conditions are not satisfactory, and if they could be improved the purchases would be made direct with American parties instead of through agents at the seaports.

IMPORTS OF COTTON-SEED AND COMPETING PRODUCTS.

The following lists contain the estimated amounts or values of cotton-seed products and the products that come into competition with them, and are taken from the commercial reports prepared at Rotterdam and Hamburg. The figures represent tons of 2,204 pounds in the first or Rotterdam table and United States dollars in the second:

IMPORTS OF COTTON-SEED AND COMPETING PRODUCTS INTO ROTTERDAM, 1902–1906.

Article.	1902.	1903.	1904.	1905.	1906.
	Metric tons.	*Metric tons.*	*Metric tons.*	*Metric tons.*	*Metric tons.*
Linseed	103,810	131,669	230,187	163,702	124,536
Linseed cakes	105,803	116,261	110,386	114,607	146,030
Groundnuts	24,838	30,231	32,491	24,994	24,759
Palm kernels	21,986	23,281	27,477	14,781	22,172
Cotton-seed oil	51,392	30,231	30,837	56,893	48,025
Cotton-seed meal	32,062	32,187	31,466	25,917	21,216

IMPORTS OF OILS AND OIL CAKE INTO HAMBURG, 1903–1905.

Article.	1903.	1904.	1905.
	Dollars.	*Dollars.*	*Dollars.*
Cotton-seed oil	1,522,950	1,502,500	1,899,364
Linseed oil	705,393	484,104	592,218
Olive oil	649,610	764,595	842,164
Palm oil	1,581,450	1,633,572	1,378,603
Cocoanut oil	1,931,522	1,098,525	1,052,500
Oil cake, all sorts	7,111,582	6,898,987	7,051,742

MUTUAL GUARANTY DESIRABLE.

One of the greatest incentives to an increase in trade would be the introduction of a method of business mutually guaranteeing business transactions by safeguarding the seller and giving the purchaser an assurance that his contracts and agreements will be faithfully carried

out. The cost of enforcing a contract by parties in a foreign land is usually found so great that it is abandoned, at least that is the experience here. It is the isolated cases of swindling or dishonesty that cause the trouble and create the want of confidence. If associations representing the various lines of business and trade should lend their aid in enforcing contracts and agreements it would go far toward strengthening trade relations and create feelings of mutual good will. The purchaser of a certain line of export goods is in a measure the customer of an association dealing in such goods whether the seller is a member or not, and an interest should be shown in such customer to retain his trade. Large sums are expended by such associations each year to build up a trade in foreign countries in their respective commodities, and to have some dishonest person annul all this work and expense by questionable transactions should not be permitted.

Consul Wallace refers at length to a recent transaction by which German firms were swindled through the issuance of forged shipping papers by parties in the United States, the details of which were published in the daily newspapers of this country and Europe. He writes that the transaction referred to has created a general feeling of distrust among dealers in cotton-seed products in Germany. The consul, in concluding his report, writes:

There are many instances going to show that United States trade suffers by reason of distrust created by the dishonesty described. I have the name of a firm operating a large oil mill, who deal only in cotton seed and who would make all purchases direct from United States producers if guaranties should be furnished safeguarding contracts and agreements. At present this firm makes all purchases through English houses. There are immense possibilities for the sale of American cotton seed and products in this country, and it remains with American producers to secure the trade.

COLOGNE.

LITTLE INFORMATION AVAILABLE.

The following report is furnished by Consul H. J. Dunlap, of Cologne, under date of March 22:

The customs authorities for the district of Cologne report that for the calendar year 1906 1,996,802 pounds of cotton-seed oil and 991,091 pounds of oil cake were entered, but whether the latter was all from cotton seed is not certain.

The meal is sold in competition with oil cake and bran as feed stuff for cattle, but I can not find that it is used as an ingredient of commercial fertilizers. No estimate can be made of the quantity used.

Edible oil is used in Germany in large quantity and is retailed as low as 20 cents per pint. In order to learn if cotton-seed oil was used as a part or in whole for the manufacture of edible oils in this district, I wrote to several manufacturers of such oils, and all who replied stated they had no knowledge of cotton-seed oils being used for any such purpose, but they understood that it was used to some extent in the manufacture of soap and in oleomargarine. As there

are no oleo works in this district, I am unable to tell anything about the quantity if any is used. It is evident that some oil or fat is used in the manufacture of the so-called olive or salad oils made in Germany, for there is no vegetable product grown in the country from which it can be expressed. There are no restrictions by the Government on the use of cotton-seed oil as such in this district.

FRANKFORT.

CHANCE FOR INCREASED SALES.

Consul-General Richard Guenther, of Frankfort, furnishes a report dated March 1, from which the following is taken:

Cotton-seed oil and cotton-seed cake and meal are all used in Germany. Cotton oil comes in competition with olive, peanut, poppy, sunflower, sesame, palm-nut, and cocoanut oils; also with edible tallow, butter, lard, and oleomargarine. Considerable quantities of the latter are imported into Germany. Cotton-seed cake or meal is not used as a fertilizer in this district. As food for cattle it comes in competition with bran, refuse of malt, rice, potatoes, peanut cake, sesame cake, linseed cake, etc.

It is not to be doubted that the sales of cotton-seed products could be materially increased by proper methods. It can not, however, be done by correspondence, by sending circulars and other reading matter, especially if these are not printed in German. Advertising matter, price lists, etc., of every character should be printed in the German language and quantities and prices stated in these.

It is important to do business in the same manner as is done in the United States by sending out commercial traveling agents with thorough command of the language of the country.

The directory of the industries, trades, and commerce of the German Empire gives the names of 63 cities and towns having one or more factories of oleomargarine, vegetable butter, and oils for table use, etc.; also 860 cities, towns, and villages with one or more soap factories. Feed-stuff dealers are found all over Germany. If the agents for cotton-seed products would personally call upon the manufacturers of edible oils, oleomargarine, soap, etc., and the dealers in feed stuffs and "talk up" their goods, good results would follow.

HANOVER.

TRADE CONDITIONS UNSATISFACTORY.

After briefly describing conditions in his consular district, Consul Robert J. Thompson, of Hanover, reports a feeling among German importers to which American exporters should give consideration. The consul writes, under date of April 2:

Cotton-seed oil and cotton-seed cakes and meal are used extensively and in growing quantities in this district and country. They are

used principally as oil and meal. The latter is used for feeding stock and in the shape of oil for admixture with edible oils, artificial butter, and lard.

Cotton-seed linters are sold here and are used in the manufacture of gun cotton, varieties of wadding, and for chemists' and physicians' borated cotton. Figures on the quantity in pounds and value are not available.

As a feed stuff cotton-seed cake or meal must compete with American corn, palm-seed cakes, linseed and linseed cakes, oats and barley; also sesame cakes and meal and peanut-shell cakes and peanut meal. Waste from sifting cotton-seed meal is used to some extent as a special fertilizer for asparagus beds. Palm-seed cakes are sold at $28.30 per ton, linseed cakes at $31.90 per ton, and peanut-shell meal at $33.30 per ton. Drying kilns for the reclamation of the waste from potatoes used in potato alcohol distilleries are being established throughout Germany, with the view of using the same as a feed stuff for cattle and swine.

COMPLAINTS BY IMPORTERS.

The moral status of the cotton-seed meal and oil trade does not seem to be in a condition satisfactory to the German importer. There is a general complaint against the irresponsibility of the brokers of certain of the southern cities. Charges of bad faith and failure to fill contracts are freely made and claims of inability to collect judgments against the American exporter granted under contract by the Arbitration Board of the Hamburg Association of Feed Merchants are cited by old and established dealers. If this be true the remedy that would at once suggest itself would be the establishment of a penalty clause in the by-laws of the Cotton-Seed Crushers' Association involving the forfeiture of membership of mills or brokers shown to have violated articles of agreement or contracts with foreign purchasers, and particularly so with the foreign purchaser, because of his fear of expense and uncertainty in instituting legal proceedings to recover losses in a foreign state and his lack of facilities for the collection of debts or judgments. The maintenance of confidence in foreign trade is one of the greatest essentials and if the clean and honorable development of a great and growing industry can be furthered by the excision and sacrifice of harmful elements organized provision should be thus made by the cotton-seed interests to protect and promote the trade.

KEHL.

CONSUMPTION IN ALSACE-LORRAINE.

Consul Joseph I. Brittain writes from Kehl on March 20 that cotton-seed cake or meal do not appear to be used there either as feedstuff or as ingredients of commercial fertilizers.

Aside from the ordinary grains and hay used in fattening cattle and hogs considerable quantities of malt sprouts and dried brewers'

grains are also used, especially in Alsace. Last year more than 6,000 tons of these products coming from the United States were sold in Alsace-Lorraine. There were also about 400 tons of pressed peanut cakes sold to fatten cattle. These, I understand, are made from the residue of the peanuts after the oil has been extracted. The peanut cakes do not come from America, however, but are made from peanuts grown in southern Europe. The American peanut, which is far superior to the European, is not known here to any extent.

Last season upward of 4,000 barrels of cotton-seed oil were sold in Alsace-Lorraine. This, however, was of the unrefined quality. There is very little refined cotton-seed oil imported direct from America. I understand that salad oils in considerable quantities are brought from France and Italy, and that these are olive oils largely adulterated with cotton-seed and peanut oils.

The leading importer of cotton-seed oils in Alsace-Lorraine informs me that at present American cotton-seed oils are obliged to compete against the oils from Egypt, which are inferior in quality to those coming from America, but are now selling at 56 marks ($13.32) for 220 pounds, while the American oils are selling for 60 marks, or $14.28, per 220 pounds.

Butter, lard, margarine, and palmin, and also the fat from geese, are the fats used for culinary purposes. The present wholesale prices for tallow are 90 marks ($21.42) per 220 pounds; lard, 108 marks ($25.70) per 220 pounds; butter, 168 to 216 marks ($39.98 to $51.40) per 220 pounds.

CONSERVATISM OF FARMERS.

The farmers in Alsace-Lorraine and Baden are very conservative and it is difficult to induce them to adopt new methods for fattening their stock or for fertilizing their lands. It has been suggested that the Cotton-Seed Growers' Association prepare literature printed in German, showing the advantages derived from the use of cotton-seed products in fattening cattle, and have such literature distributed from the various stores where grains are sold. In this manner the attention of the farmers would be directed to the benefits in a comprehensive manner.

Natural fertilizers are chiefly used in Alsace-Lorraine and in Baden. The farmers use every particle of manure from the stables and haul out all the contents of the cesspools by the dwellings. The contents of the cesspools are used on the vegetable gardens and on the growing crops. Artificial fertilizers are used more generally in Prussia.

STETTIN.

EXTENSIVE USE OF COTTON-SEED OIL—COMPETITION AND PRICES.

Consul John E. Kehl, writing from Stettin March 11, furnishes the following:

American cotton-seed oil is used extensively here; indeed, the statement has been made that Stettin consumes more cotton-seed oil than any other German city. The bulk of the oil is used in the manufac-

ture of lard compound (hogless lard), which contains from 50 to 70 per cent cotton-seed oil (varies according to the price of beef and mutton tallow), and in the manufacture of margarine, which contains from 10 to 40 per cent of oil, according to the season of the year. The entire import comes in casks containing from 40 to 52 gallons. During the past eight months the price advanced about 72 per cent—from $10 to $17.14 per 100 kilograms (220 pounds). Denatured oil, used for technical purposes, sells for $1 less per 220 pounds.

The import of American cotton-seed meal into Stettin will average about 2,500 tons per year, and is used solely for feeding purposes. The price does not fluctuate so much as oil; $30.95 to $35.70 per long ton was the range during 1906. The import into Stettin during 1906 was the heaviest on record—5,547 tons—practically all of American origin. The cause for the increase is attributed to the fact that the importers at Bremen and Hamburg tried to form a ring for the control of this article. Pomeranian and east and west Prussian interests united for the purpose of avoiding this syndicate by making direct increased purchases. The general decrease throughout the Empire is explained by the fact that the general cereal crop for 1905 was, through an extremely wet year, made practically unmarketable, leaving the bulk of the grain in the hands of the farmers, which was used by them for feeding purposes. The year 1907 promises to be very active in the line of imported feedstuffs.

SUPERIORITY OF AMERICAN OIL.

There are four concerns in Germany manufacturing cotton-seed oil. If it were possible, without increased cost of material or transportation, to import American cotton seed without its becoming hot the American manufactured article would come into contact with a destructive competitor. The German oil, mostly of Egyptian and Indian seed, is admittedly of inferior quality and sells from $3.75 to $5 per 220 pounds less than the American oil, a difference equal to the import duty and part of the inland freight charges. The English manufactured oil is about the same as the German article in quality and sells, c. i. f., less the import duty, at about the same price as the German oil.

The German law relative to the manufacture of margarine requires that it contain at least 10 per cent sesame oil. This oil, in conjunction with peanut oil, could be used more extensively in the manufacture of margarine, but it is too expensive. The lower qualities of German and English cotton-seed oil are used mostly for the cheaper grades of margarine. The manufacture of margarine in Germany was introduced by the Dutch during the early seventies. Up to that time the export to Germany from Holland had not been deterred by an import duty. Most of the margarine factories are located along the Rhine and secure the bulk of their cotton-seed oil from Rotterdam. There are about 125 manufacturers of margarine in Germany.

OILS THAT COMPETE WITH COTTON SEED.

Cotton-seed oil is not a competitor of olive oil in this section of Germany, but does compete with peanut oil manufactured mostly at

Harburg, and at present selling for $16.60 per 220 pounds; with sesame oil, selling at $15.47 per 220 pounds; with rape-seed oil, at $16 per 220 pounds, and with linseed oil, selling at $11 per 220 pounds. These oils are of German manufacture. The better qualities are used for edible purposes along the Rheinland. The manufacture of linseed oil in Stettin amounts to from 100,000 to 120,000 hundredweight and rape-seed oil to about 300,000 hundredweight per year. Sesame and peanut oil are not manufactured in Stettin, but mostly in Harburg and Mannheim.

Cotton-seed meal or cake as feedstuff comes into competition with hemp seed, rape seed, linseed, and peanut cake. Rape-seed and linseed cake are manufactured here to the extent of 600,000 and 250,000 hundredweight respectively per year, the former selling at present for $3 and the latter for $3.50 per 220 pounds.

The present prices (March 11) per 100 kilograms (220 pounds) of various articles directly or indirectly connected with this report are: Olive oil, $26.18; edible tallow, $21.42; butter, $52.36; lard, $42.85; lard compound, $20.95.

PURCHASE AND CONSUMPTION OF LINTERS.

Cotton-seed linters are neither consumed nor imported at Stettin. Bremen and Hamburg form the principal German markets for this commodity. Quite a few German wholesale dealers send their own agents to the American cotton belt. Linters seem to be an article difficult to sell from sample. The German consumer is very reluctant in purchasing from American samples. As a rule the terms are cash against documents, and they have little or no recourse if the goods do not turn out the same as the sample on which purchase was based. I have seen four letters from consumers to a gentleman residing in Stettin who tried to sell by sample. The substance of their replies was that they would purchase, but not on a cash basis, and that they must have some kind of guaranty or protection that the baled goods would be equal to the samples. As far as I can learn, linters are used for shoddy goods, scrubbing rags, quilts, comforts, gun cotton, and like purposes.

NUREMBERG.

MARKET CONDITIONS IN BAVARIA.

Vice-Consul Oscar Bock, of Nuremberg, reports that cotton-seed oil is largely used in the kingdom of Bavaria in the manufacture of artificial butter in margarine factories, there being six margarine factories in Nuremberg, one at Regensburg, and one at Munich. He continues, his report being dated February 26:

It is estimated that the six margarine factories of Nuremberg consume annually from 4,000 to 5,000 barrels of cotton oil, seven-eighths of which is of American and one-eighth of English origin. Each barrel contains about 180 kilograms, equal to 396 pounds. The

chief market for American cotton oil for southern Germany is Rotterdam. There are also importing houses at Hamburg and Bremen, but as the best and cheapest route to southern Germany is by water up the Rhine as far as Mannheim or Mayence and thence by rail to its destination in Bavaria, Rotterdam has the preference. The Rotterdam prices form the basis for the sale of cotton oil in Germany, the oil being sold at the original Rotterdam quotations, plus 1 per cent for the broker.

PRICES AND USES.

The present price (February 26) for cotton oil for edible purposes; that is, for the manufacture of artificial butter, is $14.88 to $15.28 per 220.46 American pounds f. o. b. Rotterdam, prompt delivery. Cotton oil is also used in the manufacture of soap. It is estimated that on the average the soap factories in this consular district consume 800 barrels per year. The present price for light-yellow cotton oil for soap making is $12.61 per 220.46 pounds f. o. b. Rotterdam, prompt delivery. In addition, there is the German import duty to pay. Freight from Rotterdam to Nuremberg amounts to 57 cents per 220.46 pounds, gross weight.

Cake and meal are not used in this part of Germany, there being no large farms here, such as are to be found in northern Germany. Linseed and poppy-seed cakes and meal, sesame, and peanut cakes and meal have a sale here; but reliable estimates as to the aggregate annual quantity consumed were not obtainable and official statistics on this point do not exist. However, their sale can not be very large, as in Bavaria, the great beer-producing country, the peasants greatly prefer the ground malt (Treber) as foodstuff for their cattle, an enormous quantity of which is produced annually by the Bavarian breweries as a by-product in the manufacture of beer. Linters are not known in this section.

OIL AND ARTIFICIAL BUTTER.

Cotton-seed oil has to compete here with the cheap qualities of the sesame oil and peanut oil. I am informed, however, that in the manufacture of artificial butter the better qualities of cotton oil are preferred to the cheaper grades of the sesame and peanut oils. The margarine manufacturers claim that cotton oil is not only very pure, but combines also readily with the other ingredients and can be exposed to the greatest heat. Under the law in Germany artificial butter must contain at least 10 per cent of sesame oil. I am told, however, that this does not operate to the prejudice of American cotton oil, sesame oil being merely the best means of testing artificial butter. Sesame and peanut oils are also manufactured in Germany. There are four factories in Germany whose goods have a large sale here, viz: Verein deutscher oelfabriken in Mannheim, Bremen-besigheimer oelfabriken in Bremen, Ludwig Hahn in Heilbronn am Neckar, and Carl Hagenbucher & Sohn in Heilbronn am Neckar. There are other concerns in Germany manufacturing these oils, but the oils of the aforesaid four firms are predominant in the Kingdom of Bavaria.

The present price of sesame oil per 100 kilograms (220.46 pounds) is $16.18 to $19.04; peanut oil, for technical purposes, $12.61; peanut oil, for edible purposes, $18.08 to $21.42. Reliable estimates as to the aggregate annual quantity consumed and the value of the sesame and peanut oils are not obtainable and official statistics do not exist, as the Kingdom of Bavaria does not issue separate statistics on this point.

INCREASED IMPORTATIONS.

A continual increase in the importation of American cotton oil is noticeable throughout Germany, including Bavaria. The sale of last year, however, did not come up to that of former years, owing to the immense rise in the price of American cotton oil. The quantities consumed by the Bavarian margarine and soap factories stand, however, in no comparison with the immense quantities used by the large margarine factories along the Rhine.

Oelfabrik Gross Gerau, in Gross Gerau, Germany; Brinkmann & Mergels, in Harburg an der Elbe; Emil Boley, in Uerdingen am Rhein; Holtz & Willemsen, in Uerdingen am Rhein, and others import the cotton seeds either from the United States or from Egypt and manufacture a very good oil out of them which, in years like the past, when American cotton oil commanded such a high price, finds a good sale in the margarine factories of this city. In normal years, however, cotton oil imported direct from the United States has the preference, owing to its purity and fine flavor.

WURTEMBERG.

COTTON OIL PRINCIPALLY USED IN SOAP MAKING.

Consul Henry H. Morgan, of Stuttgart, reports that cotton-seed oil which comes to Wurtemberg is imported from Holland and Belgium.

The principal use made of American cotton-seed oil in Wurtemberg is in the manufacture of a white soap. Soap makers who do not manufacture this grade of soap will not use American cotton-seed oil unless the price is at a figure that will compete with English cotton-seed oil and linseed oil. I am informed, however, by soap makers that if the price is such that will enable American exporters to compete with those oils, American cotton-seed oil will always be given the preference, inasmuch as the fatty acids produced from it serve their purpose better.

Approximately there are about 30,000 barrels, or 5,000 tons, of cotton-seed oil consumed in Wurtemberg annually. What part of this may be American oil can not be ascertained. It does not enter into competition with olive oil, lard, butter, or vegetable oils. In the northern part of Germany, however, there is made a cotton-seed oil which is used in the manufacture of oleomargarine.

There is practically no cotton-seed meal used in this Kingdom, the farmers using cake of other oils in preference, such as poppy, sesame, and arachis. A large business, however, is done in linters, which is extensively used by spinners manufacturing cheap cloth, blankets, etc.

ZITTAU.

COTTON-SEED PRODUCTS NOT USED.

Consul William J. Pike quotes from a letter from the president of the Zittau Chamber of Commerce, which body is cognizant of all matters pertaining to industrial concerns of the territory, as follows:

There is no production of cotton-seed oil or cake in this district and the trade plays a very unimportant part. It is therefore impossible to obtain any statistics of cotton-seed products, nor are any reliable particulars regarding consumption and average price to be had.

The current prices per pound for fats and oils, as near as can be ascertained, are as follows: Butter, wholesale, 26 to 28 cents, and retail, 32 cents; lard, wholesale, 14 to 15 cents, and retail, 17 cents; olive oil, wholesale, 13 to 21 cents, and retail, 23 cents; tallow, retail, 10 cents.

COBURG AND DRESDEN.

Consul-General Frank Dillingham, of Coburg, February 18, reports that cotton-seed oil and cotton-seed cake or meal and cotton linters are not used in his district. He also reports that cotton-seed oil does not come in competition with any other oils sold there.

Consul-General T. St. John Gaffney, of Dresden, writes under date of February 19 as follows:

In spite of exhaustive inquiries made, not only among merchants likely to handle such goods, but also the presidents of the chambers of commerce, I am unable to obtain any information as to the use of such products in this part of Saxony.[a]

[a] See report of Consul Carl Bailey Hurst, of Plauen, page 53.

ENGLAND.

BIRMINGHAM.

INCREASED IMPORTS—HOW UTILIZED.

Consul Albert Halstead reports from Birmingham on March 8 that no statistics are available to show the actual quantities of cotton-seed oil, cake meal, and linters used in the Birmingham district. He continues:

Cotton-seed oil is used in Birmingham mainly for soap-making purposes. Unfortunately, information as to the quantities used and as to other oils with which it is mixed has been refused. One large concern replies that it does use cotton-seed oil in its works but will give no details. As this firm manufactures other articles which require oil, I believe cotton-seed oil is also used by it for purposes other than soap making. Grocers of whom I have made inquiry as to the use of cotton-seed oil for edible purposes intimate that they know nothing of its sale for that purpose. An oil for edible purposes called "nut oil," or "nutoline," is being sold here, but I am unable to learn whether or not this is manufactured from cotton-seed oil. Under the British laws an article must be sold for what it really is, and if the grocers and others who sell olive oil know that such oil is combined with another they should specifically state that. Despite this legal requirement, I have been informed, however, that cotton-seed oil is very generally used with olive oil for domestic purposes; in other words, that the two oils are blended. This blending, I believe, is done more in the country from which the olive oil comes than here.

Drippings, which are the clarified fats resulting from cooking, are largely used, as is lard, for domestic cooking, but so far as I have been able to learn no cottoline is used for this purpose. It is also possible that cotton-seed oil under another name may be used for cooking, but that I can not definitely ascertain. Though I have no authoritative basis for the statement and can not verify it, I am convinced that cotton-seed oil is mixed with oils other than olive oil.

PRICES FLUCTUATE.

The prices of cotton-seed oil fluctuate from day to day, so exact quotations can not be given. There has been a decided advance in the price since December, 1906, amounting to about 25 per cent, and indications are favorable for a further rise. This advance is due largely to the heavy increase in the price of tallow, which embarrasses British soap makers not a little, and undoubtedly leads them to use more cotton-seed oil than heretofore. It would appear also as if cotton oil were growing in popularity, for one authority tells me that the use of this product has increased so rapidly that its price would have been higher even if tallow had not reached such a high price.

There have also been large imports of cotton seed for oil-making purposes in the past few months. The receipts for January, 1907, for the whole Kingdom were about 40 per cent greater than for January, 1906. The advance in the price of cotton-seed oil has also been so decided as to make it almost as cheap to use tallow as cotton-seed oil in soap making.

CAKE, MEAL, AND LINTERS.

Cotton-seed cake and meal is used in the United Kingdom very largely for mixing with linseed cake for feeding purposes. The latest quotations for cotton-seed cake in this market were $22.81 to $23.11 for the best brands, while English makes were quoted at $21.38 to $23.11, and Bombay cotton-seed cake at $21.80. Decorticated cotton-seed meal brings $36.49 for the pure cake made by the British Oil and Cake Mills (Limited), and $25.55 for special digestive meal, while American brands are offered at $35.28. In 1906, I am informed, the average price of cotton-seed oil was $23.11 and decorticated cotton meal $34.06 per ton.

Following are other present prices for feeding cakes, some of which are made from cotton seed or mixed with it: Fattening cake, $32.84; fattening meal, $30.41; rearing cake, $32.23; rearing meal, $29.80; dairy cake, $31.62; dairy meal, $29.19; universal cake, $31.01; universal meal, $29.19; decorticated cotton cake, $39.54; undecorticated cotton cake in bulk, $24.33; lamb cake, $32.23. These quotations are per ton of 2,240 pounds.

Cotton-seed linters, one authority says, are not used much in England, and another reports that "the delinting of cotton seed is not carried on to any extent here, as American delinted cotton seed can be bought at practically the same price as the best seed 'au naturel.' Cotton-seed linters are used for the purpose of cleaning woolly seed, but only to a small extent, and no figures are available as to the outturn."

COMPETITIVE PRODUCTS.

Cotton-seed oil comes into competition in this market with olive, peanut, and other vegetable oils, tallow, butter, etc. It comes into competition with all kinds of oils and greases that can be used for soap-making purposes, especially linseed oil and rape oil. As an edible oil it comes into competition with olive and nut oils. I am told that it is impossible to obtain the definite quantities of these other oils that are used in this section of England. The following are to-day's quotations in wholesale quantities of one hundredweight (112 pounds) for the following grades of butter: Danish, $27.74; Canadian, American, and New Zealand, $24.33 to $25.79. English butter is bought in small quantities for 26 cents per pound. American lard in Birmingham is worth $12.77 and English $13.62 per hundredweight.

Margarine can not be sold as butter except at the risk of a severe fine, yet I am told there is not a little sold as butter. and butter fortified with other ingredients is sold as genuine butter. One firm in-

formed me that they had a proposition from an individual who agreed to renovate their old butter and make it as good as new for a very small price, so that it would meet all possible Government tests, and expressed the belief that in the course of this process of renovation cotton-seed oil was used.

Cotton-seen cake comes into competition as a feedstuff with almost every variety of feed for cattle of which linseed cake, Indian corn (maize), Bombay cotton cake, barley meal, and whole wheat meal are examples, but this competition, I am informed, is not serious because of the comparative cheapness of cotton cake. However, when maize and its products are cheap they form a very serious competitor in the sale of cotton-seed cake.

For the manufacture of cotton-seed oil in England there are mills in Liverpool, Hull, and London, all belonging to one combination or company. The use of cotton-seed oil has increased largely in this country since September, 1906. One manufacturer of cotton-seed oil and dealer in cotton-seed cake and meal says:

> The consumption of cake meal is decreasing, the reason being that the quality is not so high as formerly. The percentage of fat and protein has been reduced so much that better value in cost per unit is now obtainable in ground cocoanut, etc. Cotton seed would be used in larger quantities if richer in fat and protein, even if a higher price were charged to compensate the makers for the extra cost.

This is a criticism, it seems to me, that enterprising manufacturers in the United States should seriously consider, ascertaining who is responsible, the American oil and meal makers or the foreign mills.

BRADFORD.

OIL AND CAKE EXTENSIVELY USED.

Vice-Consul Thomas L. Renton, of Bradford, reports March 21:

In this consular district, which embraces the worsted and woolen industries, the cotton-seed oil is largely consumed in making hard and soft soap, in which form it is used for scouring the wool in its various processes of manufacture. Of late years much larger quantities have been utilized in this connection, owing to the restricted supply of tallow, palm oil, and cocoanut oil, and consequent great rise in the price of these articles, and in view of the fact that it is comparatively the cheapest ingredient in the market suitable for the purpose. Cotton-seed cake is used in much less quantities in the feeding of cattle. As to actual quantities and values coming into this district it is impossible to state. Crushing mills are established at Hull and Liverpool, and the merchants receive their supplies from those centers as required.

COMPETITION AND PRICES.

Cotton-seed oil comes into competition with olive oil, linseed oil, maize oil, and those previously mentioned for soap-making purposes, and with edible tallow and nut oil for edible purposes. The main

...e and meal as ...n, beans, and ... seed products ... e are as follows:

PRICES OF COTTON-SEED PRODUCTS AND COMPETING ARTICLES.

Article.	Price per long ton.
	Dollars.
Cotton-seed oil	125.00
Cotton-seed cake	24.00
Cotton-seed meal, decorticated	41.00
Linseed oil	165.00
Linseed cake	29.00
Linseed meal	37.50 to 40.00
Tallow	185.00
Olive oil	a 210.00
Beans	b 7.50
Pease	b 7.00

a Per tun of 252 gallons. b Per 480 pounds.

LEEDS.

OIL CAKE IN GENERAL USE.

Consul Lewis Dexter, of Leeds, under date of February 28, makes the following report:

Cotton-seed cake is in general use, and is much appreciated by stock feeders. Cotton-seed meal is used by some as a highly concentrated food, and cotton-seed oil is known to enter into some manufactured articles, as, for instance, into "lardine," a substitute for lard, and, to the extent of about 10 per cent, into "drippene," a preparation used in calf rearing; and also into soap.

There are no means of ascertaining the extent of business done here in these materials, as the crushing and extracting is performed at the mills in the vicinity of the ports to which the seed is sent, notably Liverpool and Hull, and sales in this district are mostly made by agents representing the firms that deal with the seed first hand. It is the refined oil which is used here for soap making, and the present price at Hull is $124 per ton.

The cakes are chiefly supplied in the following dimensions: Two feet long, 1 foot wide at one end tapering to 9 inches at the other, about 1 inch thick, and having a corrugated surface. Other cakes are supplied in the round form, having a diameter of 15 inches, approximately. Present prices range from $22.77 to $23.71 per ton of 2,240 pounds, the former being the price obtainable for cakes made from Bombay seed and the latter for the best cakes, manufactured from Egyptian seed. Cotton-seed oil in its free state is not used here for cooking purposes, but enters more or less into the composition of butter and lard substitutes, such as margarine and lardine.

COMPETITION WITH OTHER COMMODITIES.

With reference to the inquiry as to the oils and greases entering ... competition with cotton-seed oil, I append the following table

showing present approximate prices of the various commodities mentioned, as quoted in the markets serving this district. For the sake of reference the prices are worked out at so much per ton, the oils being calculated at 9 pounds to the gallon and 250 gallons to the ton.

PRICES OF COTTON-SEED OIL AND COMPETING ARTICLES AT LEEDS.

Article.	Value per ton.	Article.	Value per ton.
	Dollars.		*Dollars.*
Cotton-seed oil	124.00	Olive oil	189.79
Linseed oil	114.35	Tallow	175.19
Rape oil	165.46	Butter	486.65
Palm oil	160.59	Lard	240.88

The competitors of cotton-seed cake as a stock food are linseed and compound cakes of various kinds. The cotton product is considered an economical feed, especially to adult animals, but users say it is "dear" at the present price of $23.71 per ton of 2,240 pounds, although it compares favorably with linseed cake at $37.71 per ton. A cheaper form of cotton feed, which could be delivered fresh and as free as possible from husk and fiber, should meet with a good reception.

Cotton cake is not used directly as a fertilizer as is the cake made from the rape seed, but its residual value as manure, after being fed, is high.

Edible oils are not in general demand here, but there are no restrictions against the importation of cotton-seed oil other than those of prejudice in favor of hogs' lard and other well-established products.

BRISTOL.

SUPPLIES DRAWN CHIEFLY FROM THE EAST.

Writing from Bristol March 19, Consul Lorin A. Lathrop reports:

The west of England being largely a grazing country the use of cotton-seed meal and cake is considerable. Direct sea imports of cotton seed into Bristol amount annually to about 50,000 tons, with an approximate value of $1,500,000. Direct imports of cotton-seed cake exceed 6,000 tons annually, of the value of $200,000. The imports of linseed cake are somewhat less than this. The sources of supply of cotton seed are Alexandria and Bombay. The demand for Egyptian and Bombay seed is increasing, and the small import from Argentina is expected to develop. The direct importations do not quite represent the consumption, as a proportion of these products reaches Bristol and its neighborhood by rail from other ports. Two local firms of importance grind cotton seed and make cakes, and in the busy season, say from October 1 to the end of March, these two concerns turn out from 4,500 to 6,000 tons per week.

Present quotations for Egyptian cotton cake, free on board, Bristol, are $25, less 60 cents per ton discount for cash in seven days from date of invoice. Bombay cotton cakes are selling for $21.87, less the

same discount, f. o. b. Ground Egyptian cotton seed is selling at $33.53, less usual discount, and ground Bombay seed $1.20 per ton less. Cotton-seed linters are not used in this district.

COTTON AND LINSEED OILS.

The imports and consumption of vegetable oils other than that pressed from cotton and linseed are not great. The consumption of olive oil in cookery and salads is limited as compared with continental use. Throughout the country districts of the west of England cream, instead of oil, is used for salad dressing. It appears to be an accepted fact that the cheaper priced olive oils have more or less cotton-seed oil in them.

Cotton-oil substitutes for lard are not very largely used at the present time. Present quotations for lard are $12 per 112 pounds. The price of butter for the last six months has been very low, say $26.50 per 112 pounds, present prices being a shade under $23. Municipal analysts occasionally institute proceedings against grocers in whose lard cotton-seed oil is found and against sellers of adulterated salad oil, not because of any prejudice against cotton seed, but because the goods are misdescribed on the label. It is, however, some years since I have noted any such proceedings.

Practically the only oil which competes with cotton-seed oil for cattle food is linseed, but this is always mixed with cotton cake, the astringent qualities of the latter counteracting the laxative qualities of the linseed. Compound cakes have come very much to the fore within the last fifteen years, and are more and more used by the British farmer. These compound cakes are accepted as being more digestible for young stock than cotton cake alone, and results, both in fatting and milking, are better. Linseed cakes, 12 to 14 per cent oil, are selling now for $42.75 per ton of 2,240 pounds f. o. b., less discount. Compounds sell for $32.50 to $35.

The increase of imports of Bombay seed has been considerable in the last few years. Its lower selling price has helped to advance its use, but farmers prefer the richer Egyptian oil, and many consider the latter as cheaper in the end. The seed is imported whole, and the oil which is extracted is sold principally to soap manufacturers.

No duty is levied on cotton seed or oil cake, nor is there discrimination on the part of the Government against it.

BURSLEM.

COTTON-SEED OIL NOT USED.

Consul Edward B. Walker, of Burslem, reports April 12:

Cotton-seed cake and meal are used extensively for feeding and fertilizing purposes in this consular district, but there is no information available showing the aggregate quantity and value of annual sales. I can not learn that cotton-seed oil is sold or used in this district. The edible oil used is olive oil, coming from France and Italy, and all those of whom inquiry have been made say that they

know of no cotton-seed oil for edible purposes being sold in this section. A representative of a firm operating a number of stores stated that some years ago several dealers were "prosecuted and heavily fined" for selling cotton-seed table oil as olive oil, and that he had not known of its sale since.

Prices for cake and meal range as follows per ton in bags, gross weight: Cakes of decorticated seed—best American brands, $37.10; selected No. 1, $37.71; Liverpool makes A1, $38.93; choice Peruvian, very rich in oil, $40.15. Undecorticated seed cakes—Liverpool makes, in bulk, $23.72 to $25.55; Egyptian, choice quality, $23.72. Decorticated cotton-seed meal, $33.46 to $34.07; cleaned cotton seed, $37.71; cleaned cotton seed, crushed, $38.93; cotton-seed oil, per hundredweight, $6.69 to $6.82.

As feedstuff and as an ingredient of fertilizers, cotton-seed cake and meal come in competition with linseed cakes and linseed-cake meal.

The price of oil cake and meal depends to some extent upon the demand for oil, and much "combination" cake (made up of various ingredients) is used. As between the American and English brands of oil cake, the statement is made that for export purposes the American cake is made hard, and that many prefer the softer native brands.

HUDDERSFIELD.

PREJUDICE AGAINST COTTON-SEED OIL.

Consul Frederick I. Bright, of Huddersfield, writing March 28, reports that the principal centers for the seed-crushing industry of England are Hull and Liverpool, from which places the seed oils, cakes, and meals are brought to Huddersfield. The consul writes:

Large quantities of cotton-seed oil are consumed here. It is used in soap making, cooking fish and other meats, in preparing potato chips, in lard and butter substitutes, and as a cheap medium for adulterating purposes. The chief industry of the district being the manufacture of woolens and worsteds, there is a great demand for wool lubricants, which are applied to the wool before it passes through the combing or carding machines. Olive, or Gallipoli, oil has been extensively used for this purpose, but in recent years it has been largely replaced by vegetable oils and oils derived from animal fats, such as tallow and lard oleins and neat's-foot oil. About 2 gallons of oil are needed for every 120 pounds of wool for this purpose. It is generally understood that cotton-seed oil is often used as an ingredient of olive-oil lubricants. The writer was informed on good authority that many olive-oil lubricants were being sold to consumers at prices much cheaper than the pure oil could be purchased at wholesale. These oils are usually sold at retail in quantities from 2 to 10 tuns (a tun of 252 gallons).

It is probably true that the demand for cotton-seed oil would be larger were it not for the increased cost of insurance (21 per cent extra) to mill owners using "any mineral oil, oil of pine, linseed,

rape, cotton, or other seed oil or any product of them, or any composition containing them or any of them." The prices of cotton-seed oil are generally cheaper than linseed.

Butter comes from Danish, Swedish, and Irish sources, and seldom, if ever, falls below 25 cents per pound retail. American lard retails at 11 cents per pound. Margarine and buttapat (English made) retail as low as 8 and 12 cents per pound.

Druggists use olive oil in the preparation of camphorated oil (a lotion). Cotton-seed oil is kept in stock and used for various purposes.

There is a prejudice against cotton-seed oil for cooking and table purposes which is probably due to its cheapness and to the tendency to regard it as an artificial substitute for a natural food. It is said that if the odor emitted in its use could not be distinguished from that of lard the demand for it would be greatly increased. The campaign to widen the market for edible cotton-seed oil seems to be largely educational, not only to convince the public that it is as pure and healthy as its competitors, but how and for what purposes it may be utilized. The demonstration method, after the manner of the Texas State Fair exhibition, has been a very successful method of introducing food preparations into this country.

The Huddersfield district is a good market for commercial seed cakes. The demands of a large population devoted to manufacturing interests for milk and its products have converted the few acres of outlying country lands into dairy farms. The district contains many more cattle than are to be found in the less densely populated agricultural portions, and except for grass must depend on other sources for cattle foods. Seed cakes and meals occupy an important place in the cattle feeding of this district. Linseed and cotton-seed cakes and certain mixtures or compound feeding cakes are in general demand by dairy farmers and cow keepers. They are also used for sheep. The rape-seed cake, as such, is not in great favor.

PURE FOOD FOR CATTLE.

Below are five provisions of the law in force here governing the use and sale of artificially prepared cattle foods, taken from the fertilizers and feeding stuffs act of 1893.

(1) Every person who sells for use as food for cattle any article which has been artificially prepared, shall give to the purchaser an invoice stating the name of the article and whether it has been prepared from one substance or seed or from more than one substance or seed, and this invoice shall have effect as a warranty by the seller of the statements contained therein.

(2) Where any article sold for use as food for cattle is sold under a name or description implying that it is prepared from any particular substance or from any two or more particular substances, or is the product of any particular seed or of any two or more particular seeds, and without any indication that it is mixed or compounded with any other substance or seed, there shall be implied a warranty by the seller that it is pure—that is to say, is prepared from that substance or substances only, or is a product of that seed or those seeds only.

(3) On the sale of any article for use as food for cattle there shall be implied a warranty by the seller that the article is suitable for feeding purposes.

(4) Any statement by the seller of the percentages of nutritive and other ingredients contained in any article sold for use as food for cattle, made in an invoice of such article or in any circular or advertisement descriptive of such article, shall have effect as a warranty by the seller.

(5) The sale as food for cattle of any article containing ingredients deleterious to cattle or worthless for feeding purposes and not disclosed at the time of the sale entails a penalty of £20 on a first or £50 on a second conviction.

Large quantities of compound cakes and meals are placed upon the market bearing fictitious commercial names which do not indicate the particular seed or product from which they are made. In complying with the law manufacturers do not give to purchasers the names of the particular seeds or products from which the cake or meal is made, but rather a chemical analysis—for example, as follows:

"*Maxilac dairy meal.*"—Moisture, 11.24 per cent; oil, 7.15; albuminous compounds, 19.94; mucilage, starch sugar, etc., 46.33; woody fiber, 9.48; ash, 5.86; total, 100 per cent. Nitrogen, 3.15; equal to ammonia, 3.32.

Compound cakes and meals are generally much cheaper than other cakes and meals, and it is not unlikely that large quantities of the cheaper seed imports enter into their composition. The greater part of the cotton seed is imported from Egypt. Rape seed is used as a food for poultry and "rape dust" as a fertilizer.

American corn and wheat products are very much in demand as cattle foods.

AMERICAN AND EGYPTIAN LINTERS.

American and Egyptian cotton-seed linters are purchased from Liverpool. In the spinning mills they are mixed with shoddy and other materials to assist in making a cheaper and finer woolen yarn than could be made with shoddy alone. Other cottons are largely used for the same purpose. The linters cost less than all raw cottons and generally less than cotton waste. Their cleanliness gives them an advantage over the lower-priced wastes, but their shortness is against their general use.

HULL.

INCREASED IMPORTS OF SEED.

Consul Walter C. Hamm, of Hull, reports, on April 3, that cotton-seed oil and cake are used in all parts of the country. He says:

Cotton-seed oil is used in towns for soap making and to some extent for edible purposes. Cotton-seed cake is used in stock feeding. Prices vary, and it is not possible to give definite information in either case as to the quantity or value of the sales of each per year.

Cotton-seed linters are used for cleaning woolly seeds, but only to a small extent, and no figures are available as to the outturn.

Cotton oil comes into competition with all kinds of oils and greases that can be used for soap-making purposes chiefly, but more for edible oils. Cotton oil is a competitor with other oils, such as olive and nut oils. Cotton-seed cake comes into competition as a foodstuff with almost every other variety of food for cattle, of which linseed cake and maize would be examples, and is partly a question of price. Again it is impossible to give quantities and values.

Hull ranked for many years as the leading oil-compressing city

in the world, but the cheapness of American cotton oil and cotton cake affected the prosperity of the business here to a material extent. The imports of cotton seed into Hull in 1906 were higher than in any year since 1903. Bombay seed was more in evidence than in the previous year and prices ruled fairly high for this class of seed. Egyptian seed varied considerably, but the close of the year found the market firm. The imports of cotton seed into Hull during the period 1897–1906 were as follows:

IMPORTS OF COTTON SEED INTO HULL, 1897–1906.

Year.	Quantity.	Year.	Quantity.
	Tons.		*Tons.*
1897	207,446	1902	291,964
1898	216,066	1903	229,189
1899	177,059	1904	234,929
1900	203,701	1905	263,952
1901	217,826	1906	221,142

The India cotton-seed crop is stated to be a good one and augmented supplies are looked for from that direction, more especially as cake made from this class of seed is becoming more popular among a certain class of farmers on account of the price, which is less than that of cake made from Egyptian seed. The imports of oil cake were as follows:

IMPORTS OF OIL CAKE INTO HULL, 1897–1906.

Year.	Quantity.	Year.	Quantity.
	Tons.		*Tons.*
1897	13,483	1902	14,733
1898	17,236	1903	15,766
1899	24,747	1904	21,579
1900	16,892	1905	30,995
1901	13,845	1906	44,190

The increase in the imports of oil cake was a substantial one, and if the figures for the last six years are any criterion it appears that the business is steadily increasing.

There was considerable increase in the exports from Hull of cotton oil during the past year. The market fluctuated during the year and at one time $81.20 per ton was the value, but later in the year the price rose to $122.50 per ton. The soap combine was partly responsible for this advance. The exports of cotton oil in 1906 aggregated 11,453 tons, the bulk of which went to Germany, France, Holland, and Belgium in the order named.

LIVERPOOL.

IMPORTS FROM UNITED STATES, EGYPT, AND MEXICO.

Consul John L. Griffiths, of Liverpool, reports of date March 19 as follows:

Cotton-seed oil and cotton-seed cake or meal are largely used in England. Raw cotton-seed oil is principally used in the manufacture

of soap. Refined cotton oil is used in the making of margarine, for fish and chipped-potato frying, and in the preparation of salads. Cotton-seed cake and meal are used for feeding cattle. I am informed that the consumption of cake and meal is decreasing, notwithstanding the slight increase of the importations in 1905 over 1904. The reason assigned is that the quality is not so high as formerly, the percentage of fat and protein having been reduced so much that better value (in cost per unit) is obtainable in groundnut cake, cocoanut cake, etc. Meal would be used in larger quantities if richer in fat and protein, even though higher prices were demanded to compensate for the better quality. In 1901 the importation of cotton-seed cake from the United States was 122,137 tons, which decreased in 1905 to 92,330 tons, whereas the importation from Egypt in 1901 was 45,926 tons, which increased in 1905 to 69,363 tons. From Mexico in 1901 the importations were 7,638 tons, compared with 10,476 tons in 1905. Comparing the years 1901 and 1905, the official figures show that the imports of cotton-seed cake from the United States considerably decreased, while the imports from all other countries in total quantity were practically the same. The present price (March 19) of cotton-seed oil is $136.26 per ton, compared with $97.33 per ton last year. The price of cotton-seed cake, good, choice decorticated American, is from $35.27 to $37.71. The price of English decorticated cotton-seed cake is from $38.93 to $40.14 per ton. The seeds imported at this port are already delinted.

Cotton-seed oil competes, as already stated, with butter, lard, and olive oil, but it has a distinct market value of its own here, and the demand is increasing.

COMPETITORS OF COTTON-SEED PRODUCTS.

Cotton-seed cake and meal compete with linseed cake as a cattle food. The present price of linseed cake is from $34.66 to $36.49 per ton. During the year 1905 the importations of cotton-seed oil increased from 10,553 tons to 14,687 tons, or 4,134 tons. The total quantity of cotton-seed cake or meal imported into England during 1905 was 172,169 tons, and in 1904 169,399 tons, an increase of 2,770 tons. From 1904 "Oil seed" is shown in the British Government statistics under the separate headings of "Cotton-seed oil," "Linseed oil," and "Other sorts." Prior to that year these classifications appeared under the heading "Oil seed," so that comparison can be made only with 1904 and 1905.

ENGLISH CRUSHING MILLS.

As before stated, the imports of cotton-seed products into this country have not increased during the last five years. Very small quantities of cotton oil are sent here. There is, however, a very large quantity of cotton-seed oil produced in this country from the seed, one factory alone turning out an average of 78,000 tons per year. In 1905 only 12,726 tons of unrefined and 5,563 tons of refined or edible cotton oil were exported, so that the home consumption must be large. Olive oil is not in great demand and is principally used for salads. In 1905 the imports were, unrefined or raw, 7,600 tons; refined or edible, 4,352 tons. Olive oil is not produced in this country. There is no doubt that cotton-seed oil takes the place of olive

oil in many instances when people simply purchase "salad oil" without further inquiry. Of course, if olive oil is asked for, cotton-seed oil can not be substituted, the foods and drugs act preventing such deception. The present price of olive oil is $204.39 per ton, as against $136.26 per ton for cotton-seed oil. There is no discrimination, so far as I can discover, on the part of the Government against cotton-seed oil.

LONDON.

OIL USED IN LARGE QUANTITIES.

Consul-General Robert J. Wynne, writing from London March 12, reports briefly and in general terms on the trade in England. The report in part follows:

Cotton-seed oil is used in considerable quantities in this country and largely for frying purposes. A large quantity is used also for packing and canning. The imports in tons in the years named are shown in the following table:

IMPORTS OF COTTON-SEED OIL INTO GREAT BRITAIN.

Year.	Quantity.	Year.	Quantity.
	Long tons.		*Long tons.*
1900	41,131	1903	36,011
1901	48,842	1904	32,100
1902	35,454	1905	38,158

Most of the oil consumed in this country is crushed in the United Kingdom from Egyptian or Bombay seed. It is possible to refine the former to make an edible oil. Oil from the Bombay seed, called "pale oil," not being sweet, can be used only for technical purposes. Sweet oil is principally used for fish frying and similar edible purposes. The pale oil, which is nonedible, is principally used for soap making, burning, for making "lardine" (thickened cotton oil), which is used as a lubricant.

PRICES AND COMPETITION.

The present price of sweet cotton oil is $6.69 per hundredweight, and of pale cotton oil $6.51 per hundredweight, both packed in casks of about 7 hundredweights gross, discount 2½ per cent; if packed in barrels for export, 12 cents per hundredweight (112 pounds) more.

Sweet cotton oil competes with olive oil, groundnut oil, sesame oil, and other sweet vegetable oils, edible tallow, etc., for edible purposes, and in the manufacture of margarine. Pale cotton oil competes with cocoanut oil, ordinary tallow, bone and other greases, fish oils, etc., for soap making; rape oil for burning, and rape, mineral, and castor

oils; also olive oil for lubricating. The nearest values for these articles are about as follows:

PRICES OF COTTON-SEED OIL AND COMPETING ARTICLES.

Article.	Price per 112 pounds.	Article.	Price per 112 pounds.
Cotton oil:	*Dollars.*		*Dollars.*
Sweet	6.69	Fish oils	3.89 to 5.35
Pale	6.51	Rape oil, burning and lubricating	7.06
Olive oil:		Castor oil, lubricating	8.28
Edible	9.98	Groundnut oil	7.30
Lubricating	9.25	Cocoanut oil	9.98
Sesame oil	5.35 to 8.52	Bone grease	7.30
Tallow:		Mineral oil, lubricating	34.07 to 73.00
Edible	9.13		
Ordinary	8.76		

MANCHESTER.

INCREASING MARKETS FOR COTTON-SEED PRODUCTS.

Consul William Harrison Bradley, of Manchester, reports, March 15:

There is a large and increasing use of cotton-seed oil, cake, and meal in England. The oil is used for edible purposes—in dairies, as salad oil, etc.—while a small proportion is used in the manufacture of soap. The increased price, however, has caused the refined American oil to be left almost entirely to edible purposes. I find that quite an amount is used by the many cheap restaurants, called "fried-fish shops," all over England.

Oil from seed imported from various countries and crushed in England seems to be the only oil used for other than edible purposes. Cotton-seed cake is used as feed for animals; cotton-seed meal is used for the same purpose and also as an ingredient in fertilizers. Cotton-seed oil is quoted at present at from $7.30 to $8.76 per hundredweight (112 pounds), according to quality; cotton-seed cake at from $36.49 to $39.54 per ton, and cotton-seed meal at $34.06 to $35.28 per ton. I do not find statistics as to the total importation of cotton-seed oil into England, but to this district there came during the year 1906, 4,642 barrels, practically all from the United States.

Cotton-seed linters have a limited use as cotton waste in some kinds of spinning, shoddy, blankets, wadding for surgical purposes, and in the making of felt hats. Account is not kept of its importation in the annual statements, but importers tell me that about 4,000 bales would be the limit of amount used here. The bales are of 500 pounds weight and the present price for good average quality is 5 cents per pound.

Cotton-seed oil comes in competition with fish oil, cocoanut oil, olive oil, palm oil, linseed oil, rape-seed oil, grease, and tallow.

There is no way of ascertaining the amount of animal fat produced in England as the slaughterhouses are at present managed.

Present prices are: Olive oil $243.32 and peanut oil $218.99 per tun; edible tallow, $194.66 to $209.25 per ton; lard, $240.88 per ton; butter, $486.65 to $545.04 per ton.

Cotton-seed cake and meal come in competition with English manufactured cotton and linseed cake, as well as cake and meal imported from other countries.

The total imports of cotton-seed cake into England for the year 1905 was 182,679 tons, of which the United States supplied 92,330 tons. There is a large and increasing market for cotton-seed products and no discrimination against cotton-seed oil.

IMPORTS OF OIL SEEDS AND OILS.

The following returns, taken from the foreign and colonial statistics of the United Kingdom, give the amount and value of oil seeds and oils imported during the year ended December 31, 1906, compared with 1905:

IMPORTS OF OIL SEEDS AND OILS, 1905 AND 1906.

Articles and countries.	Quantity.		Value.	
	1905.	1906.	1905.	1906.
Seeds.				
Cotton seed:			*Dollars.*	*Dollars.*
Egypt.....tons..	385,615	362,592	10,311,140	11,354,892
Other countries.....do...	183,313	262,175	4,159,494	6,731,780
Total.....do...	568,928	624,767	14,470,634	18,086,672
Flax or linseed:				
Russia.....quarters..	208,780	170,731	1,954,542	1,675,316
United States.....do...	9,445	86,105	87,650	872,728
Argentina.....do...	967,930	555,363	8,476,338	5,513,710
British East Indies.....do...	611,053	494,961	5,505,836	5,060,011
Other countries.....do...	126,800	280,940	1,209,529	2,815,961
Total.....do...	1,924,008	1,588,100	17,233,895	15,937,726
Rape seed:				
Russia.....do...	35,690	10,985	223,401	82,905
British East Indies.....do...	91,918	87,840	759,719	861,409
Other countries.....do...	53,718	19,324	409,053	197,555
Total.....do...	181,326	118,149	1,392,173	1,141,869
Oils.				
Refined or edible:				
Cocoanut.....hundredweight..	92,651	202,491	701,199	1,553,873
Cotton-seed.....tons..	12,341	10,884	1,099,055	1,195,022
Olive.....do...	4,352	4,467	899,742	1,090,130
Palm.....hundredweight..	34,589	62,684	217,508	377,499
Total.....	.....	.....	2,917,504	4,216,524
Seed:				
Cotton, unrefined.....tons..	8,309	1,786	266,431	163,431
Linseed—				
Pure.....do...	9,117	17,056	796,646	1,679,112
Not pure.....do...		1,605		146,306
Rape.....do...	10,992	11,050	1,169,454	1,340,336
Other.....do...	5,708	4,627	688,614	620,488
Other oils:				
Fish.....do...	25,508	27,808	2,033,870	2,314,512
Cocoanut.....hundredweight..	613,165	835,544	4,003,304	2,355,955
Olive.....tons..	7,690	9,419	1,248,748	1,556,686
Palm.....hundredweight..	1,144,368	1,223,787	6,394,975	7,077,063

EXPORTS OF OILS.

The exports of refined or edible oils in 1906 were valued at $2,861,034 against $516,952 in 1905. Of the former amount $2,603,937 was cotton-seed oil, against $462,648 in 1905. In 1906 the value of *un*refined or raw cotton-seed oil exported was $16,093 and in 1905 *$1,009,978.*

NEWCASTLE-ON-TYNE.

ALLEGED ADULTERATION BY AMERICAN MILLS.

Consul Horace W. Metcalf reports as follows from Newcastle-on-Tyne, March 25:

Following are the returns given by the river Tyne commissioners of cotton and linseed cake and meal imported into the river Tyne during the year 1906, from the countries named, in tons of 2,240 pounds: United States, 100 tons; Germany, 220; Holland and Belgium, 4; Russia, 240; coastwise, 1,976; total, 2,540. In the same year there were imported 26 tons of cotton and linseed meal, of which 25 tons were coastwise.

Cotton seed is used in this country as the source of oil which, when expressed, is used in soap making and for adulterating animal fats and oils. Prices of English oil at present are from $131.40 to $141.13 per ton. The import value of American oil is $153.29 to $163.02 per ton. The residue or oil cake is used for cattle feeding. There are no oil mills in this district, and the chief center of oil-seed crushing on the east coast is Hull. Cotton-seed linters are unknown here.

In this district there has been a decrease in the importation of cotton-seed cake and cotton-seed meal.

In answer to the sixth interrogatory of the circular, a large firm reports: "The trade in decorticated cotton-seed meal and decorticated cotton-seed cake has been decreasing from year to year, so far as this district is concerned, chiefly on account of the adulteration now practiced by American millers by grinding up and otherwise mixing the useless hulls of the cotton seed with the cake and meal. In former years, when this industry was started, we got really decorticated cotton-seed meal and cake of bright canary yellow color, containing a large percentage of oil and albuminoids, which make them highly valuable as feed for cattle. The quality has been deteriorating from year to year. In the last two or three years the shipments made from the Southern States ports, chiefly New Orleans, which is usually called 'Prime' decorticated cotton-seed cake and meal, have been scandalous, and have caused no end of trouble and disputes."

NOTTINGHAM.

LARGE QUANTITIES CONSUMED.

Consul Frank W. Mahin, of Nottingham, reports, under date of February 28:

According to the estimates of large dealers, between 20 and 30 tons (2,240 pounds) of cotton-seed oil are used in Nottingham and immediate vicinity per week in the manufacture of soap, margarine, and confectionery, and by cheap lunch stands in frying fish and potatoes. The price has varied greatly, having been as low as $4.38 per hundredweight of 112 pounds, while now it is $6.33. The aggregate quantity per year used in this locality is estimated at from 1,040 to 1,560 tons, valued at $131,590 to $197,385.

than from the United States to this district. A smaller quantity comes from India and is of inferior quality. There is no discrimination on the part of the Government against cotton-seed products of any kind. This district makes no direct importations of cotton-seed products, purchases usually being made from importers at Hull and Liverpool.

PLYMOUTH

FAIR DEMAND FOR MEAL.

Writing from Plymouth on March 6, Consul Joseph G. Stephens furnishes the following:

Cotton-seed oil is imported into this district in only the smallest quantities, as the demand for it is not large. Cotton-seed cake or meal has a much larger market, and some few years ago was imported direct to Plymouth from New Orleans in large cargo shipments. Owing to the damaged condition of the cargo on arrival by sailing vessels, this trade was abandoned and at present the product is shipped by steamer direct to either Hull or Bristol and thence to Plymouth in lots of 150 to 300 ton shipments per smaller steamer. The cake or meal is used exclusively for the feeding of cattle, and I am informed by local merchants that the demand is a steady and fairly large one. The demand, however, does not grow so rapidly as merchants had anticipated. It is impossible to learn the quantity imported into this district, as some of it arrives by rail and some by water, and those shipments which arrive by rail are not recorded.

American cotton-seed meal and cake comes into competition with linseed meal from India and cotton-seed cake and meal from Bombay and Egypt. The American product is, however, generally preferred, as it is considered more digestible.

SHEFFIELD.

OPPORTUNITY FOR AMERICAN OIL.

Consul Charles N. Daniels, writing from Sheffield, April 5, reports that cotton-seed cake and meal is but little used in that consular district, a comparatively small part of the district being devoted to agriculture. The consul continues:

Milk being the principal product of the farms, preference is given to linseed cake or meal. The present price of linseed cake or meal, 95 per cent pure, is $39.54 per ton of 2,240 pounds at Sheffield. A little Egyptian cotton-seed cake or meal is used at $24.94 per ton here. I am unable to learn that cotton-seed linters are used.

Edible cotton-seed oil is used extensively here by the fried fish and chip shops. American cotton-seed oil comes in competition with a like product made in England. This home product is English compressed cotton-seed oil, and is known to the trade as "sweet oil" or

At Leicester some of the olive oil used is adulterated with cotton-seed oil. The consular agent there thinks it likely there would be a good opening for cotton-seed oil as a lubricant in the hosiery trade if it were refined and clarified so as to leave no stain on textile fabrics. Cotton-seed linters are unknown in this district, according to all informants.

COMPETITION WITH OTHER PRODUCTS.

Cotton-seed oil competes with practically everything resembling it which can be used for similar purposes, because it is usually cheaper. The wholesale price of cotton-seed oil is about 50 cents a gallon, or about 5½ cents a pound; of olive oil from $1 to $1.40 a gallon, and of lard from 8 to 12 cents a pound. Linseed oil is quoted at from 32 to 40 cents a gallon, and is, therefore, cheaper than cotton-seed oil. There are no data as to the quantity of any of these competing articles used in this district and dealers will not venture to give an estimate.

Enormous quantities of cotton-seed cake and meal are consumed in this county, but no figures are obtainable—not even a guess from the principal dealers. The most common form is a compressed flat cake, either wedge shaped or square. It is fed to stock. Practically all the farmers in this vicinity use it. The price is from $34 to $39 a ton of 2,240 pounds. Competing articles are linseed cake, $42.58 a ton; rice meal, $27.86 a ton, and compound feed cakes, $34 a ton. Large quantities are used, but figures are unobtainable.

MARKETS OF DERBY AND LEICESTER.

It is estimated that about 40 tons of cotton-seed cake are sold per week in the locality of Derby in the spring and about 20 tons per week the rest of the year, when it is used in conjunction with linseed cake. The consular agent at Derby further states: "The article which sells best is known as 'Egyptian cotton-seed cake,' the next best in point of quality being that which is sent from Bombay. Not much ordinary cotton-cake meal is sold in this district. The compound cakes contain a large proportion of ordinary cotton-cake meal, and compound cakes are largely sold here. Some of the better class of farmers also buy decorticated cotton cake and decorticated cotton-cake meal. This is rich in oil and albuminoids. The present price of Egyptian cotton cake is $25.55 per ton, decorticated cotton cake $42.58 per ton, and decorticated cotton-cake meal $40.15 per ton."

At Leicester cotton-seed cakes, and linseed cakes in smaller quantity, are used for feeding cattle. The oil used generally by painters is a linseed product and comes chiefly from the Baltic provinces. The consular agent says he can not learn of any use of cotton-seed products as an ingredient of fertilizers. The quantities of both cotton-seed oil and cake used in this district are increasing.

There is no production of edible oils in the district. Much the larger part of the cotton-seed oil used comes from the United States, except at Derby, where oil from British dependencies is reported to be supplanting American oil. A comparatively small quantity of Egyptian and East Indian cotton-seed oil is also consumed in this county. A greater quantity of cotton-seed cake comes from Egypt

than from the United States to this district. A smaller quantity comes from India and is of inferior quality. There is no discrimination on the part of the Government against cotton-seed products of any kind. This district makes no direct importations of cotton-seed products, purchases usually being made from importers at Hull and Liverpool.

PLYMOUTH

FAIR DEMAND FOR MEAL.

Writing from Plymouth on March 6, Consul Joseph G. Stephens furnishes the following:

Cotton-seed oil is imported into this district in only the smallest quantities, as the demand for it is not large. Cotton-seed cake or meal has a much larger market, and some few years ago was imported direct to Plymouth from New Orleans in large cargo shipments. Owing to the damaged condition of the cargo on arrival by sailing vessels, this trade was abandoned and at present the product is shipped by steamer direct to either Hull or Bristol and thence to Plymouth in lots of 150 to 300 ton shipments per smaller steamer. The cake or meal is used exclusively for the feeding of cattle, and I am informed by local merchants that the demand is a steady and fairly large one. The demand, however, does not grow so rapidly as merchants had anticipated. It is impossible to learn the quantity imported into this district, as some of it arrives by rail and some by water, and those shipments which arrive by rail are not recorded.

American cotton-seed meal and cake comes into competition with linseed meal from India and cotton-seed cake and meal from Bombay and Egypt. The American product is, however, generally preferred, as it is considered more digestible.

SHEFFIELD.

OPPORTUNITY FOR AMERICAN OIL.

Consul Charles N. Daniels, writing from Sheffield, April 5, reports that cotton-seed cake and meal is but little used in that consular district, a comparatively small part of the district being devoted to agriculture. The consul continues:

Milk being the principal product of the farms, preference is given to linseed cake or meal. The present price of linseed cake or meal, 95 per cent pure, is $39.54 per ton of 2,240 pounds at Sheffield. A little Egyptian cotton-seed cake or meal is used at $24.94 per ton here. I am unable to learn that cotton-seed linters are used.

Edible cotton-seed oil is used extensively here by the fried fish and chip shops. American cotton-seed oil comes in competition with a like product made in England. This home product is English compressed cotton-seed oil, and is known to the trade as "sweet oil" or

"cooking oil," and is at present (April 5) quoted at $124.09 per ton of 2,240 pounds.

COTTON OIL AND QUICK LUNCH.

It is in this trade that there appears an opportunity for American oil. The fish and chip shops referred to are the cheap quick-lunch places of the working people of this part of England. It is said that in the city of Sheffield alone there is more than a thousand of these shops, and every town and city in the manufacturing part of England will show them in like proportion. In them a slice of fish and a plate of chips (fried potatoes) are sold at the low price of 1 penny (2 cents) each. The bulk of their trade is done at night, they being the last shops to close, rarely closing before midnight. Formerly animal fat was used in the preparation of this food, but the rigid enforcement of the pure-food act has compelled the use of vegetable oil in place of it.

SUPERIORITY OF THE AMERICAN PRODUCT.

The principal dealer in supplies for these shops a short time ago purchased from an American concern a sample lot of 50 barrels of American oil. After submitting it to severe private tests he supplied his trade with it. The trade with few exceptions pronounced it superior to the English oil they had been using. Asked in what way it excelled, the report was that it was freer from odor and less inclined to "froth up" when heated. Upon his attempting to secure a further supply of this oil he found it had advanced in price to such an extent that he could not compete with the English product. In a long interview with this dealer he advanced the idea that if the American producer could meet the English price until the trade became familiar with the superior quality of the American product there would be no difficulty in holding this market, or the better part of it at least, at an advanced price. He claimed that experiments in his own kitchen had proved its value to him and that a continued use by the trade would demonstrate the fact to them as well.

It is impossible to give any figures as to the quantity of cotton-seed oil used in this district further than to say the dealer before referred to states that if American cotton oil of the quality he has had could be put into the market at a price to compete with the English product his trade alone would require from 100 to 200 barrels a week to supply it.

IRELAND.

BELFAST.

USE OF MEAL, CAKE, AND OIL.

Consul Samuel S. Knabenshue, of Belfast, writes under date of March 14:

Cotton-seed oil, cotton-seed cake, and cotton-seed meal are used in the Belfast consular district to a considerable extent. Linters are not used here. The imports of the cake were 8,117 long tons in 1905 and 6,921 tons in 1906; of meal, 2,222 long tons in 1905 and 96 tons in 1906.

The reason for the great falling off of imports for 1906 as compared with 1905 was the high price last year. The prices in 1906 per ton of 2,240 pounds, free on quay, Belfast, were: For cake, $34.67 to $37.72, average about $36.50; for meal, $32.85 to $35.28, average about $34.07.

Cotton-seed cake and meal come into competition as foodstuffs for live stock with linseed cake and meal, and a small quantity of hemp-seed cake and meal. None of these are used to any extent as fertilizers. The imports of linseed cake for the past two years, in tons of 2,240 pounds, were 13,382 tons in 1905 and 11,732 tons in 1906; linseed meal, 128 tons in 1905 and 83 tons in 1906. The quantities of hemp-seed products were so small that they were not separately named in the official reports. The prices of linseed and cotton-seed cake and meal range on a parity. While it is true Ireland devotes a large area to flax culture, the plant is raised primarily for the fiber. It is pulled before the seed is fully ripened, and the immature seed is not deemed of any value whatever.

CLASSIFICATION OF OILS.

The Belfast Harbor Board, in its official report, classifies oils into "Petroleum and paraffin" and "Other." In the latter are included vegetable and animal oils. Hence it is impossible to obtain any trustworthy data. The edible oil competes with butter, lard, and olive oil, and finds its chief use among bakers. Two grades of cotton-seed oil are imported—the "off grade," for soap makers, and "edible" oil, for bakers' use. The quantity imported for soap-making purposes varies greatly, according to its price relatively to other soap-making oils. It may reach 1,000 tons in a year wherein cotton-seed oil is relatively cheap, and fall to 100 tons when the price is as high as it was in 1906. The quantity imported of "American prime" cotton-seed oil, that used for edible purposes, probably does not exceed from 30 to 40 tons annually. The prices of the two grades, for 1906, per ton of 2,240 pounds, free on quay, Belfast, were, for off-grade oil, $92.46 to $111.93, average about $102.20, and for edible oil, $114.36 to $138.70, average about $126.53. The official returns give the imports and exports by quantities only, and not by values. The above prices were given by importers.

The "off-grade" cotton-seed oil is used entirely by soap makers, and olive oil is its only vegetable-oil competitor. In the soap-making industry the price of the raw material governs, and cotton-seed oil has the lead when it can be sold on Belfast quay at a price that makes it the cheaper material. Ireland is noted for its butter and pig prod-

ucts, exporting both largely, hence the supply of butter and lard is ample. The use of cotton-seed oil depends upon the cost to the consumer. There is no duty on any cotton-seed products in the United Kingdom. There is the same difficulty here as everywhere else in introducing a new food product, such as cottolene; but there is no other prejudice against any cotton-seed products.

CORK.

SMALL DEMAND FOR OIL—INCREASING CONSUMPTION OF COTTON-SEED CAKE.

Consul H. S. Culver, of Cork, reports, March 13, that cotton-seed oil is used in the south of Ireland to such a limited extent that it is impossible to trace it with a view of ascertaining even approximately the aggregate quantity used. Cotton-seed cake, however, has an extensive sale. The consul continues:

Some cotton-seed oil is used by manufacturers of margarine, who import it from London or Liverpool, but not in any considerable quantity. The people generally are strangers to the product and even the leading merchants are not aware of its value or the uses to which it may be put. Like many products from the United States in the south of Ireland, it receives such attention as the dealers in London and Liverpool see fit to bestow upon it, usually being allowed to percolate into the general trade.

It is believed that cotton-seed oil would meet with an ever increasing demand here could its value as a food product be brought to the attention of the people. Other edible and competing greases, such as margarine, butter, and lard, are always high in the market, and a wholesome product like cotton-seed oil, if shown to be cheaper than other oils and greases, no doubt would meet with a ready sale. But one man in Cork keeps the oil on sale, and he dispenses only about four barrels annually. Some little is used for cooking and confectionery purposes, and some as an adulterant in expensive machine oils. It sells at from $126.52 to $145.99 per long ton.

COMPETING PRODUCTS.

It is impossible to give the aggregate annual quantity or value of the sales of competing articles. The total imports of all oils into this district for the year 1905 were 5,236 tons, while the exports were 327 tons. The exports of butter were 9,251 tons for the same period; of lard, 570 tons. Olive oil sells here for 1 shilling or 24 cents a pint; butter, from 1 shilling for common dairy to 1 shilling 4 pence, or 32 cents, per pound for creamery; margarine, from 10 to 20 cents per pound; lard, from 16 to 18 cents per pound. The edible oils are not largely used in the south of Ireland. What olive oil is sold is usually bottled by the wholesale merchants in Cork. No other vegetable oils are sold.

Unquestionably the best and quickest way of introducing cotton-seed oil for culinary purposes is through an experienced demonstrator giving exhibitions of cookery in a number of the largest places in

Ireland. This method is successfully practiced here and gives immediate publicity to any new culinary ingredient. The Dublin International Exposition, to be held this year, and numerous minor industrial exhibitions elsewhere offer rare opportunities for such an introduction.

Cotton-seed cake is quite extensively used as a feedstuff and is on sale at many establishments. It sells at $2.30 per hundredweight in competition with linseed cake at $2.43 per hundredweight. I am informed by dealers that it is considered a finer milk-producing product than linseed cake, and is therefore used principally for that purpose. Its consumption is increasing, but I am unable to give even approximately the quantity used. No cotton-seed linters are used here.

DUBLIN.

A PROMISING FIELD.

Consul Alfred K. Moe, writing from Dublin, March 16, reports:

There is an extensive field in Ireland for the development of trade in cotton-seed products. Stock raising is carried on to the exclusion of nearly all other large agricultural industries. The Irish department of agriculture has done much to educate the cattle raisers to the necessity for proper and scientific feeding, and during the past few years tests have been carried out in various parts of the country with such success that cattle feeding has assumed a new aspect. So far as I am able to determine cotton-seed cake and meal have only a slight footing here; other meals, such as linseed, still predominate the market. There should be no difficulty in gaining complete control of the Irish market if the proper means are pursued to establish cotton-seed products here. The necessity for direct importation is obvious when the high local and interisland freight rates are known.

IMPORTS AND EXPORTS.

The imports of cotton-seed oil and competing products and of cotton-seed cake and meal and competing products into Ireland in 1904 are given in the official reports as follows:

COTTON-SEED PRODUCTS AND COMPETING PRODUCTS IMPORTED INTO IRELAND, 1904.

Article.	Dublin.	Belfast.	Other ports.	Total.	
				Quantity.	Value.
Oils and fats:	*Cwt.*	*Cwt.*	*Cwt.*	*Cwt.*	*Dollars.*
Cotton-seed	5,140	1,020	120	6,280	32,090
Linseed	2,940	.....	1,320	4,260	18,638
Lard	15,709	55,620	4,523	75,952	922,834
Stearin	.....	3,160	170	3,330	30,386
Tallow	8,951	15,241	5,987	29,179	201,940
Grease	16,896	8,240	505	25,641	49,911
Butter	28,606	25,960	692	55,258	1,105,304
Margarine	21,806	11,940	2,864	36,610	463,223
Cake and meal:					
Cotton-seed cake	62,020	195,640	24,300	281,960	36,450
Cotton-seed meal	15,712	19,420	1,797	36,929	53,916
Linseed cake	165,680	276,100	31,080	472,860	728,690
Linseed meal	2,717	16,720	10,105	29,542	86,259
Cattle meal	.....	125,980	25,537	151,517	184,338
Other meal	143,414	40,788	222,952	407,154	496,353

Almost all the linseed cake came from the United States and Russia, and almost all the cotton-seed oil came from the United States. Margarine direct from Rotterdam to the value of $76,029 was imported into Belfast and to the value of $28,187 into Dublin.

The imports of manures and variety are given herewith: Basic slag, 181,961 hundredweight, value, $88,551; bone manure, 3,431 tons, value, $83,485; guano, 1,670 tons, value, $48,762; kainit, 3,456 tons, value, $42,046; nitrate of soda, 6,825 tons, value, $348,748; sulphate of ammonia, 678 tons, value, $39,594; mineral phosphate, raw, 60,981 tons, value, $565,867; superphosphate, 46,818 hundredweight, value, $569,599; artificial manures, 68,107 tons, value, $2,058,427.

The exports of artificial manures amounted to 22,223 tons in 1904, and the value, estimated, is $634,689. I am unable to find that cotton-seed products are used in the composition of any manures in Ireland. In this respect alone there should be an immense market in this country for cotton-seed products, and it is strongly urged that special efforts be made to establish a great depot in Ireland, preferably in Dublin, as a distributing center.

GOVERNMENT REGULATIONS.

The fertilizers and feeding stuffs act (1906) regulates the sale of agricultural fertilizers and feeding stuffs. It provides as follows:

SECTION 1. Every person who sells for use as a fertilizer of the soil any article which has been subjected to any artificial process in the United Kingdom, or which has been imported from abroad, shall give to the purchaser an invoice stating the name of the article and what are the respective percentages (if any) of nitrogen, soluble phosphates, insoluble phosphates, and potash contained in the article, and the invoice shall have the effect as a warranty by the seller that the actual percentages do not differ from those stated in the invoice beyond the prescribed limits of error.

SECTION 2. Every person who sells for use as food for cattle or poultry any article which has been artificially prepared shall give to the purchaser an invoice stating the name of the article, and whether it has been prepared from one substance or seed or from more than one substance or seed, and in the case of any article artificially prepared otherwise than by being mixed, broken, ground, or chopped, what are the respective percentages (if any) of oil and albuminoids contained in the article, and the invoice shall have effect as a warranty by the seller as to the facts so stated, except that as respects percentages the invoice shall have effect only that the actual percentages do not differ from those stated in the invoice beyond the prescribed limits of error.

Inspectors and analysts are appointed to watch over and examine such articles. Following is a copy of the third schedule of the regulations which govern the limits of error in feeding stuffs:

In this schedule the percentage of albuminoids is to be taken as the percentage of nitrogen multiplied by 6.25.

FEEDING STUFFS.

Description of feeding stuff.	Limits of error.
Decorticated cotton cake or meal, undecorticated cotton cake or meal, earth nut or ground nut cake or meal, palm kernel or palm nut cake or meal, cocoanut cake or meal, niger seed cake or meal, sesame seed cake or meal, sunflower seed cake or meal, hemp seed cake or meal, kurdee or safflower cake or meal, and compound cakes and meal.	One-tenth of the percentage of oil and one-tenth of the percentage of albuminoids stated in invoice.
Linseed, rape, maize products, cake, and meal	One-eighth of the percentage of oil and one-eighth of the percentage of albuminoids stated in invoice.
Dried grains, malt culms, rice meal, wheat germ, and all other feeding stuffs, as defined in regulation 3, not otherwise specified in this schedule.	One-fifth of the percentage of oil and one-fifth of the percentage of albuminoids stated in invoice.

The statistics in this trade, so far as can be gleaned from the annual official report of the Dublin port and docks board, show the following figures:

Article.	Imports.			Exports.		
	1903.	1904.	1905.	1903.	1904.	1905.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Cotton-seed cake	2,428	2,876	3,112	46	37	34
Cotton-seed meal	136	787	1,306	.....	.....	.....
Linseed cake	8,462	8,482	8,475	70	140	124
Linseed meal	663	146	148	1	[a] 3	[a] 2
Oils [b]	27,824	29,548	23,379	5,795	5,366	773
Tallow	769	442	462	354	300	398
Butter	1,134	1,432	1,385	9,270	8,423	7,779
Margarine	957	1,093	1,283	1,404	1,207	769

[a] Hundredweight.
[b] Oils are not separately classified, with the exception of petroleum and paraffin, the latter being omitted above.

It may also be noticed that the figures for the importation of cotton-seed cake differ in the reports of the department of agriculture published by the Irish government and that of the Dublin port and docks board. As there is no way of arriving at the exact figures, I give both.

BUTTER, EDIBLE OILS, AND PRICES.

It can not be actually demonstrated how far other oils and fats come into competition with cotton seed in this district because of the absence of any statistics or reliable trade information on the subject. Neither butter nor edible oils are used to the extent that they are in the United States; but, on the other hand, imitation butter, such as margarine, is used more commonly here than at home, especially for cooking purposes. Butter prices in Dublin (March 13, 1907) are: Danish, $27.24 to $27.97 per hundredweight; Irish, about the same prices; farmers', $23.35 to $24.08 per hundredweight. Olive oil sells at about $1.75 per gallon, retail; lard, per 112 pounds, pails, $11.79 to $12.03; firkins, $11.55 to $11.79. Tallow brings about $8.75 per hundredweight, and margarine about $12.65 per hundredweight; cotton-seed cake sells at $39 per ton. If the wholesale purchase price comes to about $25 per ton delivered in Dublin, it may at once be noticed that a gross profit of $15 per ton is a handsome return to the dealer, as well as a hardship on the purchaser, and must tend to keep down the sales. This demonstrates the value of an American wholesale and retail depot in Ireland, where cotton-seed products could be sold at a fair profit and at the same time greatly augment the market for such goods.

SCOTLAND.

DUNDEE.

CAKE FROM BOMBAY AND EGYPT.

Consul John C. Higgins, of Dundee, reports, on March 11, 1907, that the trade in cotton-seed products in Dundee and the surrounding country is so small as to call for little more than passing remark. He continues:

The principal form in which cotton-seed products are dealt in here is cake for cattle-feeding purposes, of which about 300 to 400 tons are consumed every week. This cake, which is almost entirely of the undecorticated sort, is made either from Bombay seed or Egyptian seed, the former costing from $20.67 to $21.89 per ton, the latter from $24.33 to $26.76 per ton ex quay Dundee. American cake is all decorticated, and very little is used here, not more than 3,000 tons per annum, including meal, which is principally used as one of the ingredients in compounding cake. The consumption is fairly regular, any change there may be leaning toward an increase rather than a decrease.

Cotton-seed oil is neither imported directly from abroad nor crushed in this city. No statistics are available to show the quantity consumed in this district, but it is understood that the whole amount would not form an appreciable factor in the trade. There are no large factories here, such as exist in London, Bristol, Liverpool, Hull, Leith, and Glasgow for the manufacture of margarine and soap, two industries in which large quantities of cotton-seed oil are used. Its use here is limited to the cooking operations of bakers and hotel-keepers, but the quantity consumed in this way is not of any practical account. Dundee also uses a considerable amount of "lardine," of which cotton-seed oil and stearin are the principal ingredients. It is imported from Hamburg, where there are large factories for its production, and sells for $2.43 per hundredweight of 112 pounds less than pure lard.

Linters are not used in this district.

DUNFERMLINE.

PRODUCTS FROM BOMBAY AND EGYPT.

Consul J. N. McCunn writes that there are no statistics obtainable in the Dunfermline district of the quantity or value of cotton-seed products sold. He continues:

The British Oil and Cake Mills (Limited), with head offices in London, have a branch mill at Burntisland in this district. The other Scotch branches are at Leith and Glasgow. Each branch receives raw material from Bombay and Egypt. Occasionally supplies are forwarded from headquarters, but practically the whole of the

cotton seed required by each branch is shipped direct. The Burntisland mill will crush about 300 tons per week, and there is a small place at Largo where about 100 tons per week may be crushed. The Kirkcaldy Oil and Cake Mills, at Kirkcaldy, deal only with linseed, as there is a good local demand for linseed oil by the linoleum manufacturers who do not use cotton-seed oil.

Cotton seed when crushed produces about one-fifth oil and the balance is made into cake. The husk is not removed from the seed before crushing, and therefore enters largely into the cake, which is termed "undecorticated cake." Cotton-seed linters are not used. Cotton oil is used chiefly for soap making and the cake for cattle feeding. A small proportion of the finest oil is used for edible purposes, and comes into competition with olive, peanut, and other vegetable oils. It also comes into competition with tallow and lard and to some extent with linseed oil.

Lard is now quoted as follows: Pure, 28-pound pails, $12.65; mixed (lard and cotton oil), 28-pound pails, $10.70. It is very difficult to get pure olive oil, and I am informed that large quantities of cotton oil are shipped to the Mediterranean and mixed with olive oil. Peanut oil costs about $194.66 per ton, and is largely used for the finer classes of margarine. Consequently, the finer cotton-seed oil can be made the more it will displace peanut oil. Cotton cake competes with linseed and other compound feeding cake, and is cheaper than the linseed cake.

EDINBURGH.

FREE USE OF ADULTERANTS IN CAKE.

Consul Rufus Fleming, of Edinburgh, March 28 writes that the commercial importance of cotton-seed products has been steadily increasing for many years. As feed for stock, the cake won favor long ago in competition with linseed cake, rice cake, and similar feedstuffs, and later the merits of the oil as an article of food, and especially as a material in the manufacture of edible and other commodities, were recognized. The consul continues:

The white oil (the best grade is so designated here) has been adopted for culinary purposes to a limited extent only. Bakers first experimented with it by smearing the loaves of bread with the oil before putting them into the oven to prevent adhesion. This proved satisfactory, and as baking is an important trade in Scotland (practically no baking is done in private houses) this use of the oil consumes large quantities. In no other way has the white oil or cottolene (little of the latter is imported or made here) been used by the bakers as a substitute for lard, lard compound, or margarine, each of which, however, contains, as a rule, a percentage of cotton-seed oil. In biscuit manufacture, an important industry in Edinburgh, this oil is not used. Margarine has largely taken the place of lard and lard compound in these establishments, and in buying margarine the biscuit manufacturers require a guaranty that it contains no cotton-seed

oil. Asked why he objected to it, the manager of a leading concern informed me it had been his experience that after a time the oil oxidized in biscuits. But for this fault, he said, his firm would use cotton-seed oil only, dispensing with margarine and lard. He expressed the opinion that for baking and cooking, where the food is to be consumed at once or within a few days, the oil should find general favor, as the best quality was perfectly suited to these purposes. But until the bakers use it more freely not much of the oil will go into private kitchens. Little olive oil or salad oil enters into cooking, the cooks preferring, as a rule, lard or lard compound, or one of the forms of imitation butter. In domestic ways and means, as in other matters, Scottish conservatism is rather difficult to overcome, but when once it yields, and when cooks become familiar with the substitute for lard, the lower price of the white oil will secure for it a very large sale. Such, at least, is the opinion of local manufacturers, dealers, and importers. The current wholesale price of the oil is about 6 cents per pound, and of lard about 10 cents per pound.

EXPANDING MARKET FOR COTTON OIL.

The principal use of edible oil in this district at present is in the manufacture of margarine. For butter and margarine Leith is the chief importing and distributing point in Scotland, and that city also produces a great quantity of the latter. Edible tallow, the main ingredient, is from $10.94 to $11.42 per hundredweight (112 pounds). The only vegetable oil used in the production of margarine here is cotton-seed oil, the price ranging from $6.07 to $6.67 per hundredweight. It has long been the practice to largely mix this oil with the tallow, and the tendency is to increase the proportion of the oil in the combination. Margarine varies greatly in price, according to quality, the quotations ranging from $7.78 to $19.46 per hundredweight. This industry offers an expanding market for cotton-seed oil, inasmuch as margarine will always be in strong demand, in competition with butter, owing to the comparatively low cost. At present the quotations for butter are $21.90 to $26.76 per hundredweight, according to quality. Little butter is made in this part of Scotland. Most of the supply for south Scotland and north England comes to the port of Leith from the Continent. In the local butter trade the opinion is freely offered that for some years cotton-seed oil has been one of the important materials in the making of continental butter of various grades. No one finds fault with the butter on that account, but not a few dealers contend that prices are much higher than the cost of production warrants; that there is a wide margin between cotton-seed oil at 5 to 6 cents per pound and butter at 20 cents per pound (wholesale).

The consumption of olive oil here is inconsiderable. It is not an item of sufficient commercial importance to be included in the official statistics of trade. The commercial olive oil, so far as it comes to this district for any purposes, is understood to be a mixture of olive and cotton-seed oils. The manager of a local cotton-seed crushing mill tells me that much of the edible cotton oil exported from Leith goes into olive oil on the Continent.

NONEDIBLE COTTON-SEED OIL.

Large quantities of the lower grades of oil are sold to soap makers. These grades, for which the prices vary from $5.59 to $6.07 per hundredweight, are mixed with ordinary tallow (quoted at $8.51 to $9.24 per hundredweight) and other materials of soap manufacture. The oil is said to be well suited to this purpose. The fact that soap factories are requiring more and more of it and using little, if any, other vegetable oil indicates that the demand is not only permanent, but likely to increase indefinitely. For one of the uses of olive oil in manufacture the cotton-seed product has not been found satisfactory, I am informed. In making certain fine grades of woolen goods (in England, not in Scotland) the yarn is treated with olive oil. Experiments with cotton-seed oil did not, it is said, bring the same results. To what extent cotton-seed oil is mixed with the olive oil used investigation has not disclosed. As the latter oil is $10.70 per hundredweight, the process of saturating yarn with it would be very expensive unless a cheaper ingredient were added.

LINTERS IN PAPER MAKING.

Cotton-seed linters are neither imported nor made here. Most of the seed worked by local mills is not decorticated. In some parts of England linters are sold to paper mills. There are in this district about twenty paper mills, large and small, and if this material can compete with linen rags, averaging $38 per ton, cotton rags at $30, or Spanish esparto at $21.30, or if it has any special merits as a paper-making material, it should readily find a market in Edinburgh and vicinity.

DEMAND FOR FEEDSTUFFS.

In this country, where maize can not be grown and the dependence for stock food is mainly upon root crops, especially turnips, for general feeding purposes during the greater part of the year, the demand for feedstuffs has made this trade an important one. Both the importation and the production of feedstuffs are large, many firms being engaged in one branch of the business or the other. The trade embraces a variety of articles, some of which are both imported into and produced in the district. Market values change from week to week. The current quotations of these commodities in wholesale quantities are as follows:

PRICES OF FEEDSTUFFS IN SCOTLAND.

Articles.	Price per ton.	Articles.	Price per ton.
Cotton seed:	*Dollars.*		*Dollars.*
Cake, American	36.50 to 39.65	Rice meal	22.38
Egyptian, homemade	24.93	Bran, medium	25.54
Bombay	20.67	Mill parings	27.37
Decorticated	34.66	sharps	24.93
Meal, American	29.20 to 35.52	Barley dust, medium	24.33
Decorticated	34.06	Pease, feeding	34.23
Linseed:		white shells	29.20
Cake, American	34.06 to 38.93	brock	29.20
Archangel	37.10	Locust beans, Cyprus	23.96
Russian	35.88	kibbled Cyprus	24.93
Homemade	37.71	Malt cummins	20.67
Chaff, white	17.64	Saccharine meal	27.37
Thorls (95 per cent linseed cake)	37.71	Dried grains, distillery	28.71
Special feeding cake	28.58	brewery	21.28
Rape-seed cake	20.67	Treacle (feeding molasses)	20.95
Bean cake, Japanese	34.06		

Two large mills in the district produce cotton-seed oil and cake, and several mills make feedstuffs or adulterants for feedstuffs. The ordinary cake is sold by the mills to farmers or feeders at $21.77, and to dealers at about $20.50 per ton. The mill price for linseed cake to farmers or feeders is $37 per ton. The cotton seed used comes principally from Bombay, varying in price from $26.76 to $31.60 per ton. Brazilian seed is quoted at $29.20 to $30.40, and Egyptian at $36.98.

ADULTERANTS IN FEEDSTUFFS.

The competition indicated by the list of materials and prices above given would be sufficiently keen, even if the factor of adulteration were absent. Unfortunately this has become an important feature of the trade. He is a wise farmer or stock feeder who knows what he gets when buying feedstuffs unless a good price is paid and a guaranty of fair quality exacted. Not only is flour-mill, distillery, and brewery "offal" of various kinds mixed with feedstuffs, but several preparations having no nutritive value are freely employed in the trade to give bulk and weight, with not always a corresponding reduction in the price of the goods. The profits of each manufacturer or dealer are derived to a great extent from a mixture or mixtures of his own compounding, to which he gives special names and into which the adulterants are thrown with lavish hand. Treacle is the basis of some of these "blends." Half a dozen other feedstuffs, including cotton-seed meal, linseed meal, rice meal, etc., may go into the mixture, to be followed by a liberal quantity of nonnutritive material. Prominent among these adulterants are "oat husks," valued at $8.50 to $9.73 per ton; oat-husk meal, sold to the trade at $12.35 to $14.60 per ton; coffee-husk meal, sold at $11.16 to $12.35 per ton, and scree dust—i. e., stone dust—which sells at $9.73 to $10.94 per ton. Oat husks are not only used here very largely, but are exported to the Continent (under other names) for the same purpose. Coffee husks are imported to this market from Hamburg under other names.

It is doubtful if the adulteration of feedstuffs has been carried to a greater length anywhere else than by local manufacturers. This element, together with the number of the articles bidding for favor, can not but have an effect upon the sale of American and other foreign cotton-seed cake and meal.

CONSUMPTION OF COTTON-SEED PRODUCTS.

It is impossible to give the quantities of cotton-seed oil or of commodities with which it competes or into which it enters or of cotton-seed cake, etc., consumed in this district. There are no statistics of production in this country. It can be said, however, that the seed-crushing mills here are largely supplying the market. The rapid growth of this industry is clearly shown by the following statistics of the imports of cotton-seed into Leith:

IMPORTS OF COTTON SEED INTO LEITH, 1901–1906.

Year.	Quantity.	Value.
	Tons.	*Dollars.*
1901	4,882	155,231
1902	3,033	78,711
1903	14,818	333,268
1904	19,795	461,982
1905	24,717	590,196
1906	28,563	728,968

Imports of linseed declined in value from $335,745 in 1901 to $310,142 in 1906. The imports of cotton-seed oil and cake into this district during the last two years were as follows:

IMPORTS OF COTTON OIL AND CAKE INTO LEITH, 1905 AND 1906.

Description.	From the United States.				From all countries.			
	1905.		1906.		1905.		1906.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.	*Dollars.*	*Tons.*	*Dollars.*	*Tons.*	*Dollars.*	*Tons.*	*Dollars.*
Cotton-seed oil, not refined	20	2,024	.....	.....	35	2,853	9	779
Cotton-seed oil, refined	.....	.....	15	2,166	61	8,570	44	5,933
Cotton-seed cake	2,950	90,862	1,861	63,396	7,850	196,271	3,820	113,034
Total	2,970	92,886	1,876	65,562	7,946	207,694	3,873	119,746

The rice meal imported (mostly from Rangoon) in 1905 amounted in value to $78,180, and in 1906 to $111,613. Imports of locust beans last year amounted to $126,500. The official figures of the total imports of oil-seed cake of various kinds in 1906 are not available, but I am informed that the imports for 1905 were not exceeded. In that year the value was $540,580. Linseed cake was by far the largest item.

The imports of greases, etc., for 1905 (the latest statistics obtainable) were:

Articles.	Quantity.	Value.	Articles.	Quantity.	Value.
	Cwt. (112 lbs.).	*Dollars.*		*Cwt. (112 lbs.).*	*Dollars.*
Butter	415,205	10,972,255	Lard	18,859	163,539
Margarine	168,895	2,052,988	Tallow	16,572	110,844

CHANCE FOR AMERICAN OIL AND CAKE.

There can be little doubt that the demand for cotton-seed oil as a material of manufacture will grow. It is also probable that the market for the cheaper cake will continue to expand. Scottish stock-feeders were the first in the United Kingdom to use undecorticated cake, and it has been chiefly through the production of this cake that the local seed-crushing mills have become firmly established. Plainly,

laws prohibit the mixing of cotton-seed oil with olive oil and labeling it "Olive oil."

About 450,000 pounds of cottolene per year is brought into this district and disposed of to be used by bakers as a margarine and butter substitute for "shortening" cakes, but as it gives general satisfaction where now used this figure might be increased. The present price of cottolene is $223 per ton, but it is very variable and has been as low as $150, its market value being regulated, of course, by that of cotton-seed oil.

Margarine is sold in several qualities at prices ranging from $195 to $340 per ton—medium qualities being most in demand—and butter at $525 per ton, but as they come here by land and water from so many different sources and are handled by so many firms I have been unable to ascertain the amount used, and none of the dealers feels justified in estimating even approximately.

An agency has been appointed in Glasgow to put on the market in the district an American product named "Veltex," which is claimed to possess qualities similar to cottolene. A representative of the agency informed me that they have not yet had their exploiting machinery set properly in motion, but that having in view the fact that a ready market had been found for "Veltex" in England he had good reason to expect success for it here. The present price of "Veltex" is about $194 per ton, but during the past year it varied from $136 up.

CAKE AND MEAL.

Cotton-seed cake or meal are not used here as ingredients of commercial fertilizers. As feedstuffs they compete with linseed cake and undecorticated cotton-seed cake, which is made here from Bombay and Egyptian seed. Home-made linseed cake is sold at $38.93 per ton, and American is usually $2.50 to $3.50 per ton less. The price of undecorticated cotton-seed cake mentioned is $22 to $25 per ton. I have been informed by the principal importer of American cotton-seed cake and meal into this district that buyers of decorticated cotton-seed cake are complaining of its extreme hardness (some of it being unfit for consumption by cattle) and are reducing its use. In regard to cotton-seed meal, he advocated very strongly the adoption of a proper standard basis of percentage of albuminoids, etc., the absence of which, he stated, materially affects its importation.

There is no import duty on any of the articles mentioned in this report.

WALES.

CARDIFF.

MARKET FOR COTTON-SEED PRODUCTS.

Consul Daniel W. Williams reports from Cardiff, Wales, February 28, that there are practically no cotton-seed products imported direct oversea, hence no port statistics are available. He writes:

Small quantities of cotton-seed oil and cotton-seed cake are used in Wales, but no cotton-seed meal has been reported. The supplies are

imported via Liverpool or Bristol or manufactured at Bristol, Gloucester, or Hull. Cotton-seed oil comes in four or five forms, the greater part in liquid form in barrels. One chemist reported that a small quantity comes from Italy, bottled as a salad oil. Another dealer, handling paints, reported that some cheap oils sold as linseed oil are, in fact, made chiefly of cotton-seed oil. Some wholesalers handle a Chicago lard compound which consists in part of cotton-seed oil, and occasionally there is a small quantity of canned cottolene on the market. Only one form of cotton-seed cake is sold here.

Cotton-seed oil is used to a small extent as a lubricant and to a greater extent as a paint mixer, but chiefly for cooking purposes. Cotton-seed cake is used chiefly as a cattle food, but in recent years sheep owners have been feeding it during the lambing season.

The price of cotton-seed oil in barrels has advanced in the past three years from 29 cents a gallon on January 1, 1905, to 40 cents in 1906, and to 55 cents in 1907. The lard compound wholesales at $10.02 per hundredweight of 112 pounds. The cotton-seed cake (8 per cent oil) retails for $2.13 per hundredweight. No cotton-seed linters have been reported.

ANIMAL OILS PREFERRED.

Animal oils, such as cheese, butter, blends, margarine, lard, and tallow, are the principal competitors of cotton-seed oil in Wales, and they monopolize about 98 per cent of the demand, leaving about 1½ per cent to cotton-seed oil and ½ per cent to other edible vegetable oils. The use of cotton-seed oil for food is practically confined to the "fish bars," which are peculiar to this country, where it is used on account of its comparative cheapness in frying fish. A small fraction is used for domestic purposes by Hebrews and in lard compound bought by the poorer classes, while another fraction is palmed on the poorer people on the Continent as a salad oil. Prices of edible animal oils and blends range as follows: Cheese, 13 to 18 cents per pound; butter, 20 to 30 cents; margarine, 8 to 20 cents; lard, 11 to 14 cents; tallow, 12 cents.

The use of cotton-seed oil as a lubricant and in the manufacture of paints and soaps is limited, and it is really used thus either as a cheapener or an adulterant.

The preference for animal edible oils is a marked characteristic of the Welsh, for they even have a word in their language to designate animal-food products. This word is "enllyn," and no Welsh meal is complete without some form of it, especially cheese and butter or other milk products. The consumption is so great that, in addition to the production, the annual imports per capita exceed 13.2 pounds of cheese, 6.8 pounds of butter and margarine, and 4.9 pounds of lard. The Welsh do not like any form of vegetable oils, and the consumption of cotton-seed oil is only an expedient when poverty presses.

DECREASE IN CONSUMPTION.

There has been a decrease in the consumption in the past ten years of all cotton-seed products prepared in America. Lard compound alone retains its hold on the market, one firm handling 20-ton lots at a time; but there is reason for suspecting that it succeeds in doing

so because it passes for lard. Cottolene has practically disappeared. Barreled oil is losing ground, both on account of its advancing price and the greater prosperity of the people. Cotton-seed cake is losing ground because, as one wholesaler reports, "American decorticated cake has practically died out, owing to the cake becoming harder and harder in manufacture," and British brands now monopolize the market. It is probable that the dumping of stale or inferior brands has contributed to this result.

Wales reported 738,789 head of cattle in 1905, and 1,989,176 acres of pasture land. In this favorable climate grass grows green ten months in the year, and there is a demand for commercial stock foods for only two or three months. Even in those months the universal practice of feeding roots, such as turnips, swedes, and mangolds, shuts out much other food. The principal competitor of cotton-seed cake is linseed cake, and others are corn offal, and the various brands of American stock food. The linseed-cake quotations are as follows: Eight per cent oil, $2.49 per hundredweight; 12 per cent oil, $2.68; 16 per cent oil, $3.16.

GROWING PREFERENCE FOR BRITISH GOODS.

A casual examination of shop windows reveals the fact that the British brand on everything is made conspicuous, and many placards with "All of British manufacture," and similar legends abound. As a result there is an increasing amount of British flour, furniture, shoes, tobacco, tinned meat, dry goods, etc., made from the American product imported in a raw form, such as grain, lumber, leather, leaf tobacco, etc.

Cotton-seed mill men must expect greater competition from British mills than ever before, for the growing patriotic sentiment for British-made goods is equivalent to a considerable tariff differential. To retain or win a place in the markets of the British Isles the American manufactured product must either undersell the British product of the same quality or be delivered more promptly, or at a lower freight. A great handicap on American articles is the lack of central storehouses.

Cardiff's docks are admirably equipped as a distributing center for all Wales, and the English midlands as far north as Birmingham and Sheffield. The Lord Line steamers run from Baltimore to Cardiff.

NETHERLANDS.

ROTTERDAM.

LARGE USE OF OIL—USE OF SEED AND MEAL LIMITED.

Consul-General Soren Listoe, writing from Rotterdam April 16, reports:

Cotton-seed oil is imported and used in the Netherlands in great quantities, but cotton-seed meal is only used to a limited extent, as the farmers, except in the Province of Zealand, where the bulk of the meal imported into Holland is consumed, seem to be afraid that

cotton-seed meal would be detrimental to the health of cattle. A prominent dealer in the article informs me that there will probably never be any general demand in Holland for cotton-seed meal as food for cattle until the farmers shall be convinced of its value and induced to believe that this kind of meal is healthy, nourishing, and fattening. This knowledge might be conveyed to them by lecturers sent from the United States, as has been done in Denmark in State agricultural institutions.

In the opinion of the Holland American Cotton Oil Company, of Rotterdam, an American concern, there is more cotton-seed oil imported into this city than into any other port in Europe. The average receipts here for the past five years have been about 200,000 barrels per year, or 10,000,000 gallons, which represent a value of about $4,020,000.

It is estimated that about 75 to 80 per cent of the cotton oil imported each season at this port is of the edible quality, and that it is used principally in the manufacture of margarine, compound lard, and for cooking purposes. The oil which is not fit for edible purposes is used by the soap manufacturers.

It is difficult to make a definite statement as to what percentage of cotton oil is used by the churners in the manufacture of margarine, the quantity varying considerably and depending principally upon climatic conditions as well as the cost price of other raw materials. In cold weather a margarine manufacturer will use more cotton-seed oil than in warm weather. I have been informed that margarine can contain 45 per cent cotton-seed oil as a maximum, while at other times only 5 per cent is used. In the manufacture of compound lard it is estimated that a manufacturer can safely use 80 per cent of cotton-seed oil throughout the entire year. As a cooking oil it is used in its original state.

MEAL, CAKE, AND LINTERS.

The leading importers claim that the average quantity of cotton-seed meal annually imported during the past five years is about 30,000 tons, representing in value $904,500.

There is practically no cotton-seed cake imported here.

Linters are not, as far as I have been able to ascertain, used in this country. A considerable amount is landed at Rotterdam destined for Germany, where it is said to be used for the manufacture of gun cotton, blankets, padding, etc. Dealers in cotton-seed products here claim that the quality of the lint in bales is very uneven, and in order to avoid dissatisfaction among customers the dealers make no sales, but advise people who use linters to purchase from American mills, free on board, or at seaports.

Cotton-seed oil of edible quality comes in competition with peanut, sesame, high-grade English cotton oil, rape-seed, and other oils or greases.

For technical purposes cotton-seed oil, such as is used by the soap makers, comes in competition with English cotton oil, linseed, palm-kernel, corn, and low-grade peanut and sesame oils. American cotton-seed oil is known to give the soap manufacturer the best results, inasmuch as it produces better fatty acids. Many of the continental soap manufacturers have facilities for separating the

glycerin and fatty acids of cotton oil. They will always pay a premium for it, but if the difference in price is too large the consumption is reduced accordingly.

Cotton-seed meal and cake comes in competition principally with linseed cake and meal. About 175,000 tons of linseed cake are imported here yearly, representing an average value for the last five years of about $5,276,250 per year. There are many mills in Holland and Germany for crushing flaxseed, which is imported from the United States, Argentina, and Russia. Linseed cake and meal produced by these mills contain considerably more oil and fat than the meal and cake shipped by America.

The import duty on cotton-seed oil and similar oils is 22 cents per 220 pounds.

IMPORTS FOR TWO YEARS.

Of the cotton-seed products imported into Rotterdam it is difficult to state accurately how much of each is used in the Netherlands. Rotterdam is practically a gateway to the Rhine district, southern Germany, and Switzerland. The Rhine district is a very large manufacturing center and thickly populated, so that a great deal of the cotton-seed products arriving here moves through to Germany.

Imports of cotton-seed and competing products into the Netherlands and the share therein from the United States for the last two calendar years were as follows:

IMPORTS INTO THE NETHERLANDS OF COTTON-SEED AND COMPETING PRODUCTS, 1905 AND 1906.

Description.	Total imports.		Imports from United States.	
	1905.	1906.	1905.	1906.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*
Cotton-seed cake and meal	75,262,000	63,793,400	69,170,200	56,896,400
Linseed cake and meal	408,207,800	475,472,800	200,670,800	291,412,000
Oil:				
Cotton-seed	36,614,600	41,635,000	33,616,000	39,377,800
Oleo	114,241,600	122,394,800	106,145,600	114,745,400
Olive	596,200	499,400	.....	.....
Peanut	1,086,800	891,000	.....	.....
Sesame, etc	431,200	904,600	.....	.....
Peanuts	58,654,200	59,331,800	.....	.....

AMSTERDAM.

INCREASED IMPORTS FOR CONSUMPTION.

Consul Frank D. Hill, of Amsterdam, reports, April 6, that the imports of margarine for consumption show a steady increase, those from the United States having advanced from 43,784 tons in 1904 to 51,157 tons in 1906, the total for the latter year from all countries aggregating 55,634 tons. The consul continues:

Imports of cotton-seed oil for consumption show corresponding increase, being in 1906 17,899 tons from the United States in an aggregate importation of 18,925 tons. During the same period imports of peanut oil show a decrease. Imports of olive oil have not increased, being in 1904, 215 tons; 1905, 271 tons; 1906, 227 tons.

Beech and poppy oil remain stationary, and the same is true of rape oil.

In 1904 6,555 acres were planted in the Netherlands with rape seed, the average yield being 76.34 bushels per hectare (2.47 acres). In the same year 39,095 acres were planted with linseed, the average yield being 1,408 pounds per hectare. Linseed is cultivated here both for fiber and seed. Dutch linseed is cultivated in the northern provinces of Friesland and Groningen for seed and in the southern province of Zeeland for the fiber. It contains, however, very little oil, and is exported for the most part to Great Britain, where it is used in making varnish (lacquer) for leather, etc. The exportations for 1905 aggregated 17,839,850 pounds, valued at $749,760.

Cotton-seed oil is largely used in this country. Imports are increasing every year, and are almost exclusively from the United States. Imports of cotton-seed cake and meal are decreasing, and at present do not amount to much on account of reported bad results. It is said that cows have died here from eating cotton-seed cake and meal, and for this reason many farmers will not longer buy this article.

The best qualities of cotton-seed oil are used for the most part in margarine factories, those used being "choice butter oil," "first prime summer yellow," and "second prime summer yellow." For mixing with peanut oil as edible oil "prime winter yellow" quality is used, while "bleachable white oil" is used to mix with compound lard. Cotton-seed oil used in margarine factories comes in competition with peanut oil, while the "off yellow" competes with linseed oil.

The price of cotton-seed cake is a little less than that of meal. English-made cotton-seed cake is at present offered at $26.23 per ton c. i. f. Amsterdam, at which price no orders can be obtained. The color of English-made is darker, but the light American color is preferred.

Cotton-seed cake and meal find competition in linseed cakes, which article is largely imported from the United States. These articles also come into competition with domestic crops of cattle fodder, such as beets, etc.

Linters are not imported here. In leaving the oil factories the cotton shells are sent to spinneries to take off the remaining cotton as far as possible, and after that the residue is used for fertilizing purposes.

DENMARK.

COPENHAGEN.

USE OF COTTON-SEED OIL AND COMPOUND LARD.

Consul-General Ernest A. Man, writing from Copenhagen April 22, furnishes the following report:

Cotton-seed oil and compound lard are used to a considerable extent in the oleomargarine industry in Denmark, about 2,200,500

pounds of the latter and 1,102,500 pounds of the former being used annually. The greater part of the cotton-seed oil used is what is known as the finest quality of "butter oil," and the compound lard used is also of the best quality.

Cotton-seed oil is used in the manufacture of oleomargarine to give it the proper consistency. Peanut oil and sesame oil are also used for this purpose. These oils, however, are, as a rule, much dearer than cotton-seed oil. About 1,102,500 pounds of peanut oil and 3,858,750 pounds of sesame oil are used annually.

During the last year there was a decrease in the use of cotton-seed oil, as the oleomargarine factories used about 10 per cent of sesame oil, which has in a measure taken the place of cotton-seed oil. Both peanut and sesame oils are pressed here, but a considerable quantity of both is imported, while all the cotton-seed oil hitherto imported has been exclusively of American production. There has lately been an effort made to press cotton-seed oil here, the result of which is not yet known.

As there is a duty of 4½ öre (1.1 cents) per Danish pund (1.1 pounds) on cotton-seed and other oils, while compound lard is free, it is said that a fine compound lard, namely, a lard made of the finest fresh stearin and best yellow butter oil in the proportion of 20 to 80, would be especially adapted for introduction here. An important condition in finding a market in Denmark for such a compound lard would be that the raw materials used should be the best, and that the manufacturers could be certain that the proportions of the raw materials used would be carefully adhered to, so that there might always be a certainty of obtaining the same combination in the lard purchased for the manufacture of oleomargarine.

The importation of cotton-seed cake into Denmark during the last three years was as follows: 1904, 406,822,500 pounds; 1905, 446,512,500 pounds; 1906, 455,332,500 pounds. There is no duty on cotton-seed cake and meal.

It is estimated that fully one-half of all the oil cake imported into Denmark consists of cotton-seed cake. The oil cake which comes in competition with cotton-seed cake is sunflower-seed cake, rape-seed cake, and flaxseed cake. By far the greater portion of the cotton-seed cake imported comes from the United States. A very small quantity comes from Russia, and a still smaller portion of so-called Bombay cotton-seed cake made from Indian seed comes here by the way of Hull, England. Importations of sunflower-seed cake come mainly from Russia, as well as some rape and flaxseed cake.

While the importation of cotton-seed cake has been steadily increasing, the quality of the cake has been, it is said, deteriorating. The farmers here demand a light-colored, crisp cake, free from hulls, but they say that present deliveries show, as a rule, dark cake full of hulls and often as hard as stone, and that it is seldom that cake is seen of a light color and with a minimum of hulls.

BELGIUM.

ANTWERP.

LARGE IMPORTS OF MEAL AND CAKE FROM UNITED STATES.

Consul-General Henry W. Diederich, of Antwerp, writes, February 27, that according to the latest complete statistics for 1905 and the provisional statistics for 1906 cotton-seed products were imported for the Antwerp market in quantities shown by the following table:

IMPORTS OF COTTON SEED AND COTTON-SEED OIL INTO ANTWERP, 1905 AND 1906.

	1905.	1906.		1905.	1906.
Cotton seed:	*Tons.*	*Tons.*	Cotton-seed oil:	*Tons.*	*Tons.*
United States	2	918	United States	5,421	2,969
British India	1,523	252	England	3,640	4,457
Brazil	.....	204	Holland	1,512	1,904
Turkey	368	201	France	2	3
Hamburg	.....	58	Hamburg	16	13
Other countries	120	98	Other countries	18	94

There is no duty on cotton-seed oil or cotton seed. Certain parties, however, wish to have a duty imposed so as to be able to sell their own products at higher prices, but the Belgian Government does not seem to be favorable to any such project.

COTTON-SEED AND COMPETITIVE OILS.

Cotton-seed oil is used here for the manufacture of hard soap, while prime qualities are used for edible purposes, such as the manufacture of margarine. Its greatest competitor is linseed oil, used for making soft soap, while what is known to the trade as technical tallow is also a rival. Olive oil, peanut oil, ravison oil, corn oil, rape oil, and palm oil are among the staple articles on this market, and the imports are shown as follows:

IMPORTS OF OILS INTO ANTWERP, 1905 AND 1906.

Kind of oil.	1905.	1906.	Kind of oil.	1905.	1906.
	Tons.	*Tons.*		*Tons.*	*Tons.*
Peanut	602	505	Corn	8,086	9,371
Rape	919	1,041	Olive	1,677	1,775
Cotton-seed	10,610	9,421	Palm	8,087	7,618
Linseed	4,207	8,452	Ravison	2,567	.....

PRICES OF COTTON-SEED OIL AND COMPETING ARTICLES AT ANTWERP, APRIL 6.

Oil or grease.	Value per 100 kilos.	Manner of delivery.
	Dollars.	
Ravison	11.77	Naked ex mill.
Linseed	9.75	Do.
Corn	13.08	Ex warehouse.
Olive	12.73	Do.
Rape	13.89	Naked ex mill.
Palm	15.44–16.21	C. i. f. Antwerp.
Peanut:		
For the manufacture of margarine	17.37–25.09	Do.
For the manufacture of lard	13.51–15.44	Do.
Cotton:		
American	13.51	Ex warehouse.
English	13.08	Do.
Tallow:		
Edible	19.30–23.16	C. i. f. Antwerp.
Technical	16.40	Do.
Butter:		
Belgian	52.11–61.76	Do.
American	21.23–27.02	Do.

Hitherto American butter has been imported only in sample lots. For edible purposes the markets here are obliged to resort to the importation of foreign oils, as there is no edible oil manufactured from the natural products of this country.

SEED CAKE AND MEAL.

Cotton-seed meal and cake are used for feeding live stock, while the meal is also used for fertilizing purposes. Cotton-seed cakes, however, are entirely eclipsed on this market by linseed and other oil cakes, which were imported as follows:

IMPORTS OF OIL CAKE OTHER THAN COTTON-SEED CAKE INTO ANTWERP, 1905 AND 1906.

Whence imported.	1905.	1906.	Whence imported.	1905.	1906.
	Tons.	*Tons.*		*Tons.*	*Tons.*
United States	118,448	162,202	Italy	1,536	248
Germany	3,650	1,892	Japan	370	501
England	9,164	9,129	Holland	3,000	3,339
Austria-Hungary	116	49	Portugal	594	717
Canada	5,739	8,845	Argentina	267	691
Spain	825	1,751	Roumania	510	151
France	22,178	11,763	Russia	32,747	24,547
British India	3,263	3,482	Other countries	903	2,320

Cotton-seed cake and meal compete directly on this market with linseed cake as feedstuffs, but it may be said that all kinds of fodder are competitors. As fertilizers the principal competitors of cotton meal are nitrates and phosphates.

The prices at present per 100 kilos are as follows: Linseed cake, $3.33; nitrate of soda, c. i. f., $5.21; cotton-seed meal, c. i. f., $3.30 to $3.47; phosphate (per ton), $10.61 to $15.44. There are no statistics showing the importation of cotton meal.

MARKET FOR LINTERS.

Cotton-seed linters are used for making floor cloths, the better qualities for bedquilts, woolen fabrics, and coarse cotton thread.

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GHENT.

DEMAND FOR LINTERS.

Consul W. P. Atwell, of Ghent, reports February 28:

Cotton-seed oil and cotton-seed meal are used to a limited extent in this consular district. It is estimated that approximately 4,000 tons of cotton-seed meal are sold annually in East and West Flanders. All of the cotton-seed meal sold is imported through the port of Antwerp, where important commission houses are located. The meal is sold at Ghent in sacks of 165 pounds for the quality known as "bolted" and in sacks of 110 pounds for the quality known as "prime Texas." It is used exclusively for feeding live stock. The present prices per 220 pounds at Antwerp (February 28) are: Bolted, wholesale, $3.47, retail, $3.75; prime Texas, wholesale, $3.38, retail, $3.60.

Cotton-seed cakes are unknown to the trade here. Cotton-seed meal competes principally with bran, corn, oats, etc., and in general with all kinds of fodder. The demand for the meal is more or less regulated according to the harvest. A poor harvest is cause for a strong demand for cotton-seed meal, while a successful harvest has the contrary effect.

The consular district of Ghent being the principal cotton-spinning center of Belgium, it is natural that cotton-seed linters are used to a great extent, the total quantity approximating 20,000 bales per annum. The cotton linters imported here are principally used in the manufacture of smokeless powder, woolen fabrics, cotton blankets, and for coarse cotton thread.

The wholesale price now varies from $6.75 to $15.44 per 220 pounds, according to grade and market fluctuations. The approximate value of the cotton-seed linters used in this consular district during the past year was about $400,000. The "A" quality is mostly in demand.

REGULATION OF PRICES.

The demand for cotton-seed oil is wholly regulated by the demand and prices of linseed oil. The cotton-seed oil imported into this district is almost exclusively used in the manufacture of soft soap. When prices of linseed oil are such as to leave little or no profit to the soap manufacturer, the use of cotton-seed oil then enters as one of the principal factors in this manufacture. The prices of cotton-seed oil and linseed oil are regulated by the Antwerp market, and are subject to fluctuation, caused principally by speculation.

A small quantity of English cotton-seed oil is also imported into this district, but when use is made of such oils a marked preference is given to the American article on account of its superior quality. Cotton-seed oil is also extensively used in the manufacture of oleomargarine, important factories of which are located at Antwerp and Brussels.

LIEGE.

IMPORTER WISHES TO HANDLE COTTON-SEED PRODUCTS.

Writing from Liege, under date of February 18, Consul James C. McNally reports:

Cotton-seed oil, not being sold as such, does not come into direct competition with any other oil, grease, lard, or tallow in this district. Cotton-seed cake or meal is not used as fertilizer in this province. I am unable to locate anything in direct competition with cotton-seed meal or cake as a feedstuff, for while the local users draw on the sugar factories and breweries for the residue of their products they claim that cotton-seed meal is simply used in connection therewith and enriches the milk, etc. There is said to be an increase in the importations of cotton-seed products, but statistics are not available here.

BLENDED WITH OLIVE OIL.

France formerly shipped in an enormous quantity of olive oil said to be strongly blended with cotton-seed oil. There is now a prohibitive regulation against such blending unless it be so stated on the invoice and plainly marked on the label attached to the package. There is no discrimination on the part of the Belgian Government against the introduction of cotton-seed oil as such.

While a fair proportion of the cotton-seed oil imported into Belgium finds its way to the local markets, I have been unable to locate a shop or business house, large or small, handling it under that name or any other. It is undoubtedly mixed with some other article or used in the manufacture of something that absorbs the name. It is said that a considerable part of the importation is used in the manufacture of margarine, which, on account of the high price of butter, commands an enormous sale. Cotton-seed cakes are not used as such, but ground into meal, and sell at $3.59 per 220 pounds. The sifted commands a slightly higher price. From a source other than the Government I learn that in 1905 6,175,500 pounds of cotton-seed meal were used in the Province of Liege. Cotton-seed oil, cake, and meal are entered free.

A Liege importer of colonial goods would like to get in touch with the American cotton-seed producers with a view to exploiting the products on the Belgian market under their proper name. His address may be obtained at this consulate.

AUSTRIA-HUNGARY.

TRIESTE.

IMPORTS, CONSUMPTION, AND PRICES.

Writing from Trieste April 3, Consul George M. Hotschick furnishes official statistics showing quantities and values of cotton-seed oil imported into Austria-Hungary for a number of years, nearly all importations being made through the port of Trieste. The consul reports:

While figures showing imports of cotton-seed oil at Trieste are not obtainable from local authorities, all oils being placed in the same category, it is generally agreed that 90 per cent of the entire importation is by Trieste. The following table shows quantities and values of cotton-seed oil imported into Austria-Hungary for the years stated. Tariff rates are not included in values, which are given in United States dollars.

IMPORTS OF COTTON-SEED OIL INTO AUSTRIA-HUNGARY, 1895–1906.

Year.	Quantity.	Value.	Year.	Quantity.	Value.
	Pounds.	*Dollars.*		*Pounds.*	*Dollars.*
1895	14,680,872	675,909	1901	30,993,590	1,797,954
1896	19,087,427	919,777	1902	25,918,600	1,691,816
1897	28,347,629	1,296,387	1903	32,755,285	1,680,394
1898	36,874,360	1,632,308	1904	34,692,688	1,679,072
1899	35,932,617	1,820,788	1905	42,347,720	2,435,830
1900	30,394,379	1,958,658	1906	43,311,351	2,674,103

CAKE, MEAL, AND LINTERS.

Cotton-seed oil is used in this consular district as table oil. It is also used to a great extent in the manufacture of artificial butter, and in small quantities in compound lard, and also in the manufacture of soap.

Cotton-seed cake and meal are not used nor imported at Trieste. The consumption of oil cakes is slight. The products of the oil-cake factories in this district, consisting of cakes made of linseed, cocoa, sesame, and rape, are exported to England and Germany.

Lately cotton seed has been imported at Trieste; last year about 11,023,000 pounds. On cotton seed, as on all other oil seeds, there is no import duty in Austria. The cotton seed is utilized by some factories.

Cotton-seed linters are neither used nor imported at Trieste.

In the northern part of Austria, especially in Bohemia, cotton-seed cakes are used to feed cattle, but not in large quantities. Exact figures can not be given because the statistics put oil cakes of all kinds in the same category. The total import of all kinds of oil cakes into Austria-Hungary for the year 1906 was 22,114,342 pounds, valued at $292,373. The exports were 70,549,845 pounds, valued at $1,109,786.

Cotton-seed oil competes with olive, sesame, and peanut oils as table oil. Often it comes mixed with the oils mentioned and is sold as edible oil. In the manufacture of artificial butter cotton-seed oil competes with sesame and peanut oil. It competes in the manufacture of soap with several fatty products; principal competitors are cocoa, palm, and linseed oils, and mowrah and tallow and the lower graded sesame and peanut oils.

In what quantities these competitors of the cotton-seed oil are used can not be stated; there are no trade statistics in this respect. It is estimated that the annual production of sesame oil and peanut oil in the city of Trieste amounts to 22,046,000 pounds, valued at $1,827,000.

Tallow, premier jus, and other fatty substances of animal origin are produced annually in Trieste to the amount of from 440,920 to 661,380 pounds, valued at from $30,450 to $45,635. The production of linseed and cocoa oils amounts to 15,432,200 pounds, value $1,218,000, annually.

TARIFF RATES AND SPECULATION.

The increase in the imports of cotton-seed oil in 1905 and during the first two months of 1906 has its foundation in speculations. On March 1, 1906, the new Austrian tariff came into force, and the duty on cotton-seed oil was raised from $1.93 to $8.12 per 100 kilos (220.46 pounds). This increase in the tariff induced not only consumers of cotton-seed oil to speculation, but also agents, and large quantities were imported before the new tariff took effect. The low prices prevailing at that time in America furthered the speculations, and at present there are still 11,023,000 to 13,227,600 pounds of cotton-seed oil unsold in store at Trieste. Since March 1 almost no cotton-seed oil has been imported into Austria. The large quantities in storage and the increased tariff rates after March 1 explain the decline in imports.

A NEW COMPETITOR.

A new competitor of cotton-seed oil has arisen in this country. Heretofore there have been some factories which manufactured oil from plants. These factories have been enlarged lately, and three new ones are building, of which one is at Trieste. It is reported that these three factories will be able to produce 33,069,000 pounds of table oil, enough to cover the previous annual imports of cotton-seed oil. The construction of the three factories was instigated by merchants of Marseille, France. Under such circumstances it will be hard for American cotton-seed oil to compete.

The former use of cotton-seed for the manufacture of artificial butter and compound lard will probably decrease. Instead of it cocoa oil is already used. Butter produced from this oil is under the name of "Gloriol," "Kunerol," "Ceres," and other fancy names and is much favored by the public. The retail price is 20 to 24 cents per kilo (2.2 pounds) the wholesale price is 20 per cent lower. This new butter is chiefly consumed in districts with a dense Hebrew population, and replaces lard. The raw cocoa oil is partly produced in Austria from the shells of the fruit of the cocoa palm, and a considerable quantity is imported from Germany and the East Indies.

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s:

PRICES OF OILS AT TRIESTE.

Oils or fats.	Prices.
	Dollars.
.....	24.36 to 26.39
.....	17.25 to 20.30
.....	22.94 to 23.95
.....	20.50 to 21.31
.....	20.71 to 21.31
.....	15.22 to 15.43
.....	22.33 to 22.74
.....	21.11 to 21.31
ana, duty paid.....	22.74 to 23.34
.....	19.79
.....	13.60
.....	18.27 to 18.47
.....	21.11 to 21.31
.....	19.89
.....	14.21 to 14.41

REICHENBERG.

FACTS AND FIGURES COVERING THE EMPIRE.

Consul S. C. McFarland, of Reichenberg, furnishes the following report, dated March 12:

Until the new tariff went into operation, March 1, 1906, which discriminated particularly against cotton-seed oil by advancing rates from $1.93 to $8.12 per quintal of 220.46 pounds on general imports and fixing a rate of $2.44 on importations for prescribed technical purposes, the importation advanced rapidly, reaching a value of $2,435,850 in 1905. Its uses were varied, and new ones were continually being discovered. Besides being used as an ingredient in the manufacture of soap, heavy machine oils, etc., it became an important admixture of margarine, lard, edible tallow, artificial butter, burning, olive, table, and medicinal oils, arousing the hostility of the agrarian element to such an extent that the new tariff resulted. It was chiefly imported in barrels or casks through oil agents and commission houses at Antwerp, and in 1905 sold at $12.18 to $14.21 per quintal of 220.46 pounds, the same grades now being quoted at $14.21 to $18.24. Peanut and sesame oils, its chief competitors for general purposes, are now quoted at $15.23 to $16.24, and pure olive oil at $29.52.

North, or German, Bohemia is an industrial section, largely mountainous, and a heavy importer of foodstuffs, agriculture and stock raising being confined generally to small peasants in the valleys, dairy interests being unimportant. For this reason cotton-seed oil in this region has been only known to and utilized by concerns manufacturing soaps, margarine, friction oils, toilet preparations, and by drug stores and in textile processes. While probably more

than a proportionate amount of the total imports has been used in this section for such purposes, it is believed that the great bulk has been utilized heretofore in the southern dairy and agricultural portions of the Empire, in both Austria and Hungary, where margarine meets butter and whence came the impetus for the increased tariff. This new tariff has worked such revolution and disaster to the users of cotton-seed oil, abruptly reducing the import from $2,435,850 in 1905 to a shipment of $205 since March 1, 1906, that there has not only been great individual complaint, but the Austrian Economical Society took the matter up at a recent meeting, when it was discussed by a speaker substantially as follows:

UTILITY OF FOOD FATS.

Among the fat stuffs imported from the United States into Austria-Hungary oleomargarine and cotton-seed oil are especially to be considered, as paraffin, which only a few years ago played such an important rôle, to-day is scarcely to be mentioned. It is a noteworthy fact that the consumption of artificial food fats is on the increase, and it is probable that, although Austria produces an excellent grade of oleomargarine, the local manufacturers may soon be unable to satisfy the home demand. Even if the agriculturists in Austria strenuously support the false hypothesis that the competition of artificial food fats lowers the price of cows' butter, still, on the other hand, it is well known that just those provinces where the greatest number of cattle are bred are the largest consumers of artificial butter. This artificial product is not used, as might be supposed, to adulterate natural butter, but, as in the Alpine lands, the producers prefer to sell their butter at good prices and use for their own needs the cheaper oleomargarine. Regarded from this standpoint it is of great interest for the country population that no obstacle be placed in the way of preparing good and cheap substitutes, such as food fats. Cotton-seed oil of the best quality is used for the table, and the poorer kinds for industrial purposes, notably in the manufacture of soap. The duty of 40 kronen ($8) is evidently a strong protective tax, and the wish has been expressed that this be reduced.

At present cotton-seed oil is imported for industrial uses and a duty of 12 kronen ($2.44) is laid upon this. It is rumored, however, that the acid from cotton-seed oil is to be taxed but 2.50 kronen ($0.50). Soap manufacturers are glad to use cotton-seed oil, and in large quantities, but the stearin producers would like to see a heavy duty placed upon it, because they regard it as competing with their oleine; but in any case the present duty is designated as altogether too high.

The Austrian producers of all kinds of artificial fats have supported a lively trade with America, for they import the principal raw materials in large quantities from the United States. Very seldom is there any export of fats from Austria-Hungary to the United States, and then only in times of crises.

It may therefore be asserted that the oleomargarine dealers have a very great interest in continuing the imports from the United States as hitherto, while they have but little or no object in keeping up the export to that country. The Austrian margarine manufacturers complain that by the new tariff such a high duty has been laid upon articles principally used in their branches, such as oleomargarine, oleo oil, "Premier Jus," suet, cotton-seed oil, and cotton stearin, that further imports from America are not only made more difficult but absolutely impossible. Thus the abnormal raising of duties on the above articles may result in destroying the existence of these industries here. Although some of the materials used in the manufacture of margarine are produced in considerable quantities in Austria-Hungary, yet cotton-seed oil and cotton stearin, hundreds of thousands of barrels of which are consumed in this industry, can not be produced either in Austria or in all Europe, and are not in any way to be replaced. The manufacture of margarine in Austria is, in the full meaning of the word, absolutely ruined through the unreasonably high duties, for since March 1, 1906, the previously flourishing export trade of final products from Austria to Germany, Switzerland, Italy, the Balkan States, and the Orient has been rendered impossible. The desires of the margarine producers, therefore, are concentrated upon maintaining the present most-favored-nation clause between Austria-Hungary and the United States,

regardless of whether this is done by concluding a general commercial reciprocity treaty or otherwise. They hope to retain the possibility of enjoying in the future the exports of these articles from the United States, and, lastly, in view of the small exports from Austria-Hungary to America, the producers of artificial food fats here have little interest in bringing about a change in the American customs methods.

EFFORTS TO SECURE REDUCED RATES.

Hearings are being held and pressure is being brought to bear upon the Government to secure a reduction of present rates. The new classification, under which cotton-seed oil proper can be brought in at $2.44 for technical purposes, and now used chiefly for soap, provides, in Bohemia for instance, for the securing of an official permit covering a certain amount from the Landes-Finanz-Direction in Prague and continued custody under customs officials until used for the specific purposes stated. Of the total quintals of fats and fat acids imported in 1905, 108,748 came from the United States, and 68,979 in the last ten months of 1906, but cotton-seed fats are not specially mentioned. One other noticeable and immediate effect of the new tariff has been the importation of cotton seed, which enters free. The amount of $65,887 in the first six months is not important, but it is a new departure and indicates that crushing is proceeding, at least experimentally, here.

Austrians are great users of edible oils, especially of olive oil, which is produced in southern sections of the Empire. It is undeniable that cotton-seed oil was becoming a very important constituent of the "olive oil" generally sold, when the new tariff not only cut off the supply of cotton-seed oil, but put a discriminating duty upon adulterated olive oil of $2.03 as against 81 cents (treaty) for the pure article. Importations of the latter, chiefly from Italy, jumped at once from $721,168 in 1905 to $1,043,418 for the ten months of 1906. The principal oil agents for this section are: Gebrüder Fellner, Hugo G. Siegmund, Franz Leclerc, and Karl. Jul. Trenkler, all of Reichenberg.

RAW COTTON AND LINTERS.

The textile concerns of this district use at least half, and some good judges say even more, of the total raw cotton imports. These imports in 1905 aggregated 1,630,705 and in the last ten months of 1906, 1,328,980 quintals, the United States being credited in the first instance with 894,394 and in the latter with 672,457 quintals, Egypt and India combined for the latter period being credited with 485,731 quintals. The remainder, obviously American cotton in the main, is variously credited to Germany, Bremen, England, etc. Linters (Abfälle) are used to an even greater proportion in this district, as compared with total cotton imports, for coarse yarn and textile productions of cheap grade. In official statistics linters proper and cotton waste of all sorts are combined, and of total imports of 96,126 quintals for the last ten months of 1906, 14,960 were attributed to the United States (evidently linters proper), 59,993 to Germany, 11,270 to England, and 3,911 to India. The Indian importations are thought to be linters proper, but the importations from England and

Germany, three-fourths of American origin, are chiefly of so-called "waste" from finer processes. There is a steady demand for linters, but transactions are generally conducted through agents and commission houses at Bremen, direct satisfactory relations with the American market, as in the case of standard cotton, never having been effected. Present prices range from $8.12 to $12.18 per quintal of 220.46 pounds, according to color and grade. Of the large number of cotton agents here, the following make a specialty of linters, dealing direct with mills and buying chiefly on the Breman exchange: Franz Bogner, Heinrich Hauser, R. Heidrich, Gustav Hermann, Herrmann & Hoffmann, Lorenz & Müller, Ferdinand Mitwitzky, Herman & Co., Gustav Rehak.

COTTON-SEED CAKE.

Cotton-seed cake is not known on the local markets of this section. Of Austrian importations of miscellaneous seed cake (exclusive of 14,315 quintals of flaxseed cake) in 1906, 18,729 are credited to Germany, 18,078 to Russia, 15,204 to Italy, 11,329 to Roumania, and but 3,375 to the United States. The latter item is probably cotton-seed cake. All oil cakes known in this section are used as a sort of medicinal stock food, but to a very small extent. Flaxseed cakes are quoted at $2.84 to $3.05 per quintal of 220.46 pounds.

IMPORTATIONS UNDER OLD AND NEW RATES.

The following table shows quantities and values of the several articles included for the calendar year 1905 and for the ten months of 1906 ended December 31. The latter period was covered by the new tariff and the former by the old rates and classifications.

IMPORTS OF COTTON-SEED PRODUCTS AND COMPETING PRODUCTS INTO AUSTRIA-HUNGARY, 1905 AND 1906.

Article.	Calendar year 1905.		Mar. 1 to Dec. 31, 1906.	
	Quantity.	Value.	Quantity.	Value.
Seeds:	*Quintals.*	*Dollars.*	*Quintals.*	*Dollars.*
Cotton	.....	.....	24,042	65,887
Rape, root seeds, etc	303,753	1,356,561	44,042	178,811
Poppy	25,841	246,548	37,180	354,734
Resinous	9,674	51,059	.....	.....
Flax	301,505	1,330,030	349,427	1,805,445
Sesame	.....	.....	67,617	466,693
Palm kernel, nuts	446,641	2,720,044	232,626	1,511,138
Copra	.....	.....	207,466	1,726,490
Other oil seeds n. o. s	154,914	849,084	39,948	178,408
Total	1,242,328	6,553,326	1,002,328	6,287,606
Fats:				
Butter, natural	2,939	116,340	1,273	55,286
artificial	589	9,565	131	2,393
Lard	148,235	2,738,345	819	15,296
Goose	.....	.....	9	347
Bacon	8,127	150,130	818	18,930
Margarine	.....	.....	12	190
Cocoanut oil, cleaned	.....	.....	51	984
Edible tallow n. o. s	.....	.....	9	117
Total	159,890	3,014,381	3,122	93,543

IMPORTS OF COTTON-SEED PRODUCTS AND COMPETING PRODUCTS INTO AUSTRIA-HUNGARY, 1905 AND 1906—Continued.

Article.	Calendar year 1905.		Mar. 1 to Dec. 31, 1906.	
	Quantity.	Value.	Quantity.	Value.
All kinds of fats for technical purposes; no cotton-seed oil mentioned, total	*Quintals.* 538,917	*Dollars.* 5,150,847	*Quintals.* 456,483	*Dollars.* 4,638,233
Oils:				
Root	175	1,847	29	263
Linseed	43,711	386,722	16,680	159,571
Resinous	1,375	12,561	1,335	17,138
Denaturized	11,324	91,951	11,289	114,583
Olive	166	5,385	249	8,039
Pure	25,931	721,168	35,305	1,043,418
Denatured	9,115	96,218	7,632	86,761
Mixed with others	1,243	20,813	765	12,734
Mixed with cotton-seed	39	530		
Sulphur	10,048	83,629	27,102	242,075
Sesame	8,167	124,343	2,645	41,881
Earthnut (peanut)			638	10,232
Denatured	2,162	24,139	1,629	21,486
Corn, poppy, sunflower, etc	2,802	39,810	131	2,296
Cotton-seed	192,088	2,435,850	13	205
For technical purposes			8,367	122,719
Other oils n. o. s	4,367	54,329	4,172	50,667
Total	312,703	4,099,301	118,181	1,934,084
Cotton waste (including linters)	105,465	1,028,046	96,126	975,679
Oil cake n. o. s	120,065	304,675	73,978	187,719

RATES OF DUTY.

In the following table rates of duty in American money per 100 kilos (220.46 pounds) are given:

IMPORT DUTIES, OLD AND NEW RATES.

Article.	Old rate per 100 kilos.	New rate per 100 kilos.
Seeds:	*Dollars.*	*Dollars.*
Rape, root, radish, and other like oil seeds	0.48	0.61
Poppy seeds	.48	.61
Flaxseeds and other oil seeds, n. o. s	Free.	Free.
Fats:		
Butter, natural or artificial	4.80	7.11
Butter, natural, fresh		4.87
Lard, goose fat, bacon	7.73	9.13
Cocoanut oil, palm oil, vegetable, tallow	.48	.51
Edible greases, n. o. s		7.11
Greases, n. o. s	.48	.51
Oils:		
Root oil, in barrels, etc	1.93	2.44
Linseed oil, in barrels, etc	1.16	1.52
Cotton-seed oil, in barrels, etc	2.44	8.12
For technical purposes, under special prescribed terms, in barrels, etc		2.44
Corn, poppy, sesame, earthnut, sunflower oil, etc	1.93	4.87
Olive, pure	1.15	.81
Mixed with other oil, under treaty	1.92	2.03
Olive, earthnut, and resinous oil for technical purposes intended for denaturation under control of special custom officers, under treaty		.41
Sulphur oil		Free.
Root oil, in bottles and like covers weighing up to 25 kilos		6.09
Corn, poppy, sesame, earthnut oil, in bottles, etc		7.31
Olive oil, in bottles		4.47
Cotton-seed oil, in bottles, etc		9.74
Oils, in bottles	4.83	
Cotton linters	Free.	Free.
Oil cake	Free.	Free.

PRAGUE.

MARKET CONDITIONS—EXTENT OF IMPORTATIONS.

Consul Urbain J. Ledoux, of Prague, under date of March 9, reports that cotton-seed oil has been imported into Bohemia in fair quantities for several years. He says:

This oil was first imported for technical purposes, but during the past few years it has been imported only for edible purposes, chiefly in the manufacture of butter. As there are no separate statistics of imports into Bohemia, or of local consumption, it is impossible to state the exact amount used each year, but it is estimated at about one-third of the total for Austria-Hungary, or about 7,000 tons in 1905, and only about 300 tons for the ten months of the year 1906, during which period the new tariff has been in force. Prices fluctuate considerably, but are generally governed by the ruling prices in the United States. It is now quoted at $20.30 per 220 pounds delivered duty paid at the railway station in Prague.

PRODUCTS IN COMPETITION.

Cotton-seed cake is not used in Bohemia. The reason given is the low price of rape-seed cake and palm-kernel cake. Cotton-seed meal is consumed in a fair quantity for feeding purposes, now selling at $4.06 per 220 pounds delivered at the railway station in Prague.

Cotton-seed linters are not used in Bohemia.

Cotton-seed oil comes in competition with peanut oil, sesame oil, and Cochin cocoanut oil, selling at $23.35, $22.33, and $23.35 per 220 pounds, respectively, delivered f. o. b. Prague, duty paid, cash, less 2 per cent discount.

Cotton-seed cake comes in competition with rape-seed cake and palm-kernel cake.

INCREASED DUTY UNDER NEW TARIFF.

The new Austro-Hungarian tariff which came into force on March 1, 1906, raised the duty on cotton-seed oil from $1.93 to $8.12 per 220 pounds. The higher duty was imposed for the double purpose of protecting the production of genuine butter and encouraging the production of oils from imported seed. In prevision of the higher duties enormous quantities of cotton-seed oil were imported, the supply having proved sufficient to cover the requirements of the trade to date. For instance, the total import of oils, mostly cotton-seed oil, amounted to $2,834,322 for January and February, 1906, compared with $320,510 for the same period of 1905. As these stocks must be exhausted soon, consumers will be obliged to enter the market again, unless the competing oils can be sold at lower prices.

To avoid payment of the higher duty on cotton-seed oil the "Actiengesellschaft zur Erzeugung vegetabilischer Öle," in Trieste, has been trying to produce cotton-seed oil from imported cotton-seed, but I am informed that these experiments have not proved entirely satisfactory. It is reported that the seed suffers so much from the

long journey and frequent handling that it is quite impossible to produce fine oil anywhere but in the country where the seed is grown. If this difficulty could be overcome, the crushing of cotton-seed would no doubt assume large proportions.

It is stated that on account of the higher duty sesame oil and peanut oil will be largely utilized in the production of oleomargarine. The local authorities greatly encourage the use of sesame oil produced in this country for such purposes.

Cotton-seed oil for industrial purposes could be imported at the rate of duty of $2.44 per 220 pounds, and efforts were made last year to have the duty reduced, but thus far there has been but little encouragement.

Cotton-seed oil is sold delivered f. o. b. Hamburg. The prices quoted per 100 kilos (220 pounds) during 1905 and 1907 averaged as follows: 1905, 43 marks; 1906, 54 marks; 1907, 68 marks. The prices delivered f. o. b. Prague, duty paid, would have been, 1905, $11.20; 1906, $21; 1907, $24.40. Sesame oil produced in Austria-Hungary was quoted as follows per 220 pounds delivered f. o. b. Prague: 1905, $19; 1906, $19.60; 1907, $23. Cochin cocoanut oil imported via Hamburg can be delivered f. o. b. Prague, duty paid, for $21.20 per 220 pounds. The prices quoted in 1905 and 1906 were $15.40 and $18.60 per 220 pounds, respectively. Peanut oil produced in Austria-Hungary is quoted at $22.40 per 220 pounds delivered f. o. b. Prague.

SWITZERLAND.

BERNE.

COMPETITION WITH OTHER OILS AND MEAL.

According to Consul Edward Higgins neither cotton-seed oil nor cotton-seed cake or meal is used in the district of Berne. His report is dated March 9 and reads:

There is no prejudice against cotton-seed products, but the price is too high. There would be a good market for cotton-seed oil and a probable market for oil cake, provided these products could be sold at a price considerably lower than that charged for sesame oil and sesame cake. The present price of sesame oil f. o. b. Berne is about $8 per 100 pounds. Sesame cakes cost $1.50, and peanut cakes, which are also used to a large extent, $1.66 per 100 pounds f. o. b. Berne. Peanut cakes contain 46 per cent protein and sesame cakes 38 per cent. This quality is guaranteed by dealers. Buyers are entitled to a Government analysis free upon request. Cotton-seed cakes are said to contain less protein than sesame cakes.

There are no statistics covering the consumption of edible oils or oil cakes for this district. The only statistics available are those representing the total Swiss import of these articles. The imports for 1905 from the various countries follow. The total import for 1906 is also given, but the figures for the different countries have not been published.

IMPORTS OF OILS AND OIL CAKE, 1905.

Whence imported.	Olive oil.	Other edible oils.	Oil cake, meal, bran, etc.
	Pounds.	*Pounds.*	*Pounds.*
United States	.....	103,600	220,200
Italy	2,014,000	48,000	22,776,000
France	1,258,000	5,235,000	41,805,000
Spain	21,000	5,700	.....
Algeria	15,800	.....	.....
Austria-Hungary	12,000	88,100	410,000
Asiatic Turkey	440	.....	.....
Netherlands	.....	154,500	.....
Belgium	.....	36,800	.....
Russia	.....	12,800	1,208,000
Germany	.....	317,400	18,685,800
Canada	.....	.....	289,000
Other countries	.....	.....	250,000
Total imports, 1905	3,414,240	6,001,900	80,774,000
Total imports, 1906	2,977,000	10,501,000	45,821,000

A small quantity of olive oil is produced in Switzerland near the Italian boundary in the Canton Ticino. The price of olive oil f. o. b. Berne varies from $6.13 to $14 per 100 pounds. The French and Austrian oils are of a high grade. The Italian oil is of a low grade, and although listed under edible oil is used mostly for industrial purposes or lubricating. The trade claims that no adulterated olive oil is imported into Switzerland. Falsely branded oil would subject everybody connected with the sale to prosecution by the Government under the pure-food law. It is admitted, however, that adulteration of olive oil is carried on in France and Italy, but only for local consumption or export to countries whose laws are not stringent.

TARIFF RATES—OTHER IMPORTS.

The customs duties are: Olive oil in receptacles containing more than 22 pounds, free; other edible oils, 17½ cents per 100 pounds; oil cakes, oil-cake meal, free. Cocoa butter and margarine products are manufactured in several factories. The packages must be labeled to indicate the true contents. Aside from the import of oils and oil cake mentioned, the following articles were imported in 1906: Lard, 4,150,000 pounds, almost entirely from the United States; price, $11.40 per 100 pounds; fresh butter, 7,716,000 pounds, at $24 per 100 pounds; oleomargarine, cooking fat, etc., 2,866,000 pounds, at $13.10 per 100 pounds; cocoa butter, 1,355,000 pounds, at $7.88 per 100 pounds; denatured olive oil and almond oil, unrefined, 3,430,000 pounds, at $5.25 per 100 pounds; cocoanut and palm oil, unrefined, 6,610,000 pounds, at $6.13 per 100 pounds.

The names of firms in Berne willing to consider American offers are Joh. Sommer & Co., Zeughausgasse, oils and oil cakes; C. Reinhardt, Bankgässchen, cakes and meal.

GENEVA.

REPORT ON MARKET CONDITIONS AND IMPORTS.

Consul Francis B. Keene writes, March 13, that cotton-seed oil is very little known in Geneva, and furnishes the following particulars:

Few people in this district know what cotton-seed oil is. It is used, but to what extent is a difficult problem to solve. No distinct statistics for this district, and for cotton-seed oil alone, are obtainable; but Federal returns of the customs show that, from the United States, fat oils and vegetal wax (linseed, olive, and resinous oils not included) were imported to a value of $328,000 in 1905; $197,246 in 1904; $243,566 in 1903; $241,057 in 1902, and $261,129 in 1901. These figures appear largely to represent cotton-seed oil. It enters this country by way of Bellegarde, coming from Marseille, where the market price recently was 82 francs for 100 kilos ($15.83 per 220 pounds).

Oil dealers are few. I have interviewed all of the more important, but learned very little from them. They all have or make olive, walnut, peanut, poppy, and sesame oils. A few have a small quantity of cotton-seed oil, although I know positively that some firms import as much as 10,000 kilos (22,046 pounds) at a time.

NO PREJUDICE AGAINST COTTON-SEED OIL.

There is no prejudice whatever against cotton-seed oil. It is generally pure, wholesome, and almost without flavor when fresh. It is said that it quickly gets rancid and is considered as an oil of inferior quality. These are perhaps the reasons why grocers are so reluctant to acknowledge that they keep it, but its cheap price is a feature, and it is sold to a larger extent than is generally known, principally mixed with as little olive as possible.

Large American shipments are said to arrive in Marseille. A good part thereof may be sold for mixing with olive oil. Another part may be used in the manufacture of vegetable butter, together with other oils, such as cocoanut and palm. An important Marseille firm, manufacturers of the vegetable butter called "vegetaline," has lately opened a branch factory in Carouge, near Geneva, in order to fill quicker and with more profit their numerous Swiss orders. Soap manufacturers are using the lower grades. The balance is used in its natural state, but does not amount to much. The semiwholesale prices per liter (1.0567 quarts) of various oils are—sesame, 21.2 cents; peanut, 27 cents; poppy, 24.1 cents; walnut and olive, 41.5 cents; cotton, 21.2 to 23.1 cents. Olive and walnut oils are mostly used here, the better grades selling easily for 48¼ cents and more a liter. The first named comes almost exclusively from the south of France and from Italy. Imported walnut oil comes chiefly from France, but the home product almost equals the demand. Nuts are largely imported from Italy and the French departments of Isere and Gironde.

During recent years the price of butter has increased to such an extent that different kinds of "vegetal butter" have been put successfully on the market. Some of them are made here. "Vegetaline" sells at retail at 27 cents per 2.2 pounds. "Cocose" and "laureol"

are also sold. "Liauba," described as a "yellow grease," is sold at $22.19 per 220 pounds; "les deux porcs," or "white grease," at $24.12; "nostras," a "sort of lard," at $27.98; "oleol," an "oily grease," at $34.74, and "etoile," or "margarine," at $34.74 per 220 pounds. These are meant to take the place in the city homes of butter, the high price of which, about 58 cents per 2.2 pounds, is generally prohibitive. In the country Swiss butter still holds its own, being used almost exclusively with lard and retailed at about 34.7 cents for 2.2 pounds.

Oil is not generally used in this part of Switzerland for frying, as in southern European countries. It is chiefly used for salad and mayonnaise sauce. Hence the small prospect of selling here cotton-seed oil in quantity for use in its natural state. Oil dealers, wholesale grocers, and soap manufacturers, of whom a list is appended, are considerable though not large purchasers. The Marseille market controls more or less the whole importation as far as this consular district is concerned, but it is my opinion that cotton-seed oil producers would do well to give some attention to this country. The soap manufacturers are just now advertising that, owing to the increase of value in primary stuff, such as oils and greases, they will have to increase their selling price about 40 to 50 per cent.

OIL AND CAKE IMPORTATIONS.

Oil cake is consumed here only for cattle food during the winter months, when other foods are not to be had or are too expensive, which is the case this year, owing to the long drought of the summer of 1906 and the following severe and long winter. I find that very little cotton-seed cake has ever been imported here. Sesame, copra, and linseed cake, all coming from Marseille, I am informed by a dealer, meet the requirements, although they are all more expensive than cotton-seed cake. Sesame is sold here at about $3.667 per 220 pounds, copra and linseed at $3.86, and cotton seed at $3.18 per 220 pounds, but of the latter none is obtainable here just now.

If American producers want orders, they should send a commercial traveler, preferably of American origin, able to explain the qualities and merits of the products he wants to sell and knowing at least the French and German languages.

The value of imports of oil and oil cakes is shown in the following table:

IMPORTS OF OIL AND OIL CAKES, 1902–1905.

Article.	1902.	1903.	1904.	1905.
	Dollars.	*Dollars.*	*Dollars.*	*Dollars.*
Olive oil	435,215	320,380	372,104	294,518
Other oils	431,740	554,875	489,255	436,180
Oil cake and cattle food	1,049,244	1,082,459	1,000,917	1,080,317

Of the oil cake and cattle food imported in 1905 France furnished $567,420 worth; Italy, $299,150; Germany, $185,666; Russia, $13,703; Canada, $3,281, and the United States $2,509.

[Names of Swiss importers and possible importers of cotton-seed products in the Geneva district have been furnished by Consul Keene and are on file at the Bureau of Manufactures.]

LUCERNE.

SCIENTIFIC EXAMINATION OF COTTON-SEED MEAL.

Consul R. E. Mansfield, writing from Lucerne, March 20, reports that cotton-seed products are little used in Switzerland, and gives the results of some experiments made several years ago along scientific lines at the agricultural college in Rütti, for the purpose of determining the value of cotton-seed meal as a food supply for animals. The experiments were made especially in the interests of the dairies, where the question of food supplies for the cows constitutes an important item in the cost of dairy products. Following is an extract and translation of the report made by the college on the result of the tests:

In the winter of 1893 and 1894, we examined by feeding experiments the influence of different residues of the oil production, including peanut, flaxseed, and cotton-seed meal, on the quantity and quality of milk, and the living weight of milk-producing cattle. By feeding the same quantity of each we gained in proportion the best results with cotton-seed meal. Under the circumstances we were led to examine more carefully this food product, which is but little known in this country.

The cotton-seed meal used in Switzerland comes exclusively from North America. The value of the meal as a food varies according to the quality of the seed and the force of the pressure employed in extracting the oil. In composition it may be compared with sesame and peanut cake, but differs from them by the greater quantity of albumen and fattening qualities it contains. The digestible stuffs contained are as follows:

Property.	Cotton-seed cake.	Peanut cake.	Sesame cake.
	Per cent.	*Per cent.*	*Per cent.*
Albumen	36.9	40.4	33.5
Nitrogen free of extract stuffs	16.7	22.2	13.2
Raw fiber	.1	1.3	2.3
Foodstuff in proportion	1:1.3	1:1.1	1:1.3
Fat	12.0	6.5	11.5

The cotton-seed meal used in our feeding process came from Texas and was double or twice ground. After the examination by the Swiss agricultural inquiry department in Berne it was reported to contain 48.9 per cent of alkali albumen, 8.2 per cent raw fat, and 5.5 per cent of ashes. Of digestible foodstuffs the cotton-seed meal contained 41.1 per cent albumen and 7.3 per cent fat. The foodstuffs used in the feeding process showed the following percentages of dry substances and raw foodstuffs:

Properties.	Cotton-seed meal.	Sesame meal.	Hay.	Red beet.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*
Dry substances	.....	90.95	90.30	13.61
Alkali albumin	48.9	38.31	8.74	1.197
Raw fat	8.2	13.64	1.94	.039
Nitrogen free of extract stuffs	.....	21.28	46.47	9.875
Raw fiber	.....	6.46	25.70	.838
Ashes	5.5	10.66	7.45	1.66

In reply to an inquiry from this consulate concerning the uses of cotton-seed meal in Switzerland at the present time, the director of the agricultural college at Rütti, where the experiments above referred to were made, reports as follows:

I have to inform you that cotton-seed meal, if used at all in Switzerland, is consumed in such small quantities as to render it an insignificant feature of the import food supply for animals. Its consumption will probably not increase, as its qualities are not especially favorable.

COTTON-SEED OIL LITTLE KNOWN.

There is no classification of oils imported as food products into Switzerland by which the amount of the different kinds of oils may be determined. Olive, cotton-seed, sweet oils, and various other grades are listed together in the schedule of Swiss imports. The best grades of oil of this class pay a duty of $4 per 220 pounds. All cases, bottles, etc., in which the oil is packed are included in the dutiable weight. Inquiry among local dealers revealed the fact that cotton-seed oil is little known or used in this consular district. There was imported into Switzerland during the year 1905 olive oil valued at $313,053, about 55 per cent of which came from France, 40 per cent from Italy, and the remainder from Spain, Algeria, and Austria-Hungary. Other edible oils imported in 1905 were valued at $430,327. Of the total amount of edible oils imported into Switzerland in 1905 the United States is credited with only $7,528.

Cotton-seed oil comes into competition with olive oil, various vegetable oils, tallow, and butter, the latter being used extensively for cooking purposes in Switzerland. Of the various classes of edible oils consumed in Switzerland olive oil is the most popular and most generally used.

In Switzerland cotton-seed cake or meal comes into competition with bran, hay, carrots, and malt, large quantities of which are furnished by the breweries.

ZURICH.

COMPLAINTS OF DEALERS AGAINST SALES METHODS.

Vice-Consul Joseph Simon, in a report from Zurich, says that in Switzerland cotton-seed oil is a well-known and well-introduced article and in years when prices are low it is used in considerable quantities. His report, dated March 16, follows:

It is imported partly direct from New York houses and partly from the large continental seaports. It is used mainly in the manufacture of soap and butter. Statistics as to quantities used in this consular district do not exist, but it is supposed by leading oil dealers here that the soap makers in the Zurich district are probably using from 3,000 to 5,000 barrels of different kinds of oil annually, and the butter factories perhaps 1,500 barrels. There is a good market here for cotton-seed oil only when peanut oil is scarce and higher in price,

for at even prices the latter is much preferred by both industries. None of these industries ever make direct imports, but secure their supplies from the wholesale dealers here.

Cotton-seed cakes and meal are not used in this district at all. In years when hay is scarce some sesame-seed cakes are imported from Marseille. It is claimed that they are milder and of better quality than cotton-seed cakes and do not cost any more. Cotton-seed linters are not used in this consular district and probably nowhere in Switzerland.

The use of cotton-seed oil, as well as any other oil, for cooking and baking is almost unknown in the German part of Switzerland, with the exception of the little used in the manufacture of butter. Some lard is used, but butter much more extensively, as this consular district is very rich in that production, and it is not probable that there will be any chance for oils to take its place. During the past year not only has cotton-seed oil as soap oil found a larger market in Switzerland than during many of the previous years but also as salad oil, especially during last winter, when to a great extent it took the place of sesame oil, which for a long time has been used almost exclusively. This was on account of the steadily rising prices of the latter. However, as prices for best qualities of cotton-seed oil have lately gone up again, with still more of an increase in view, sesame oil will probably take its old place again before long, as at an even price, or even if about 10 per cent higher, that kind will be preferred, having, it is claimed, a better taste and better flavor.

There is no discrimination on the part of the Government against cotton-seed oil so long as it contains no unhealthy substances. One thing that has brought about a more or less bad feeling among the importers of cotton-seed oil is the frequent delayed deliveries, a complaint that almost never exists with regard to other oils of this nature. All sorts of explanations and excuses are made by the exporters—lack of barrels, etc.—but the dealers here have slowly come to the belief that all such excuses are only made up when American exporters find it profitable to hold back shipments. For such reasons a large oil dealer states that he, as well as others, will naturally again come to pay more attention to other oils.

The following circular was recently sent to the dealers here by one of the New York shippers:

SITUATION OF COTTON OIL.

In August, 1906, it looked as if this country would have a large cotton-seed crop (and of good quality), and in this expectation all the mills sold the various grades of oil for October-March shipment of the new crop at prices which now appear very low. In October the weather in the cotton States very seriously damaged the seed, which catastrophe has two results, viz., that this damaged seed will produce but very little oil of choice quality, and secondly, that the production of oil per ton of seed is less (probably 15 per cent less) than it would have been out of sound seed.

The damaged seed crop hence gives less oil in quantity and poor oil in quality. As a result of all this we shall have this season a minimum supply of choice yellow oils and a very small supply of fine white edible oils, and seeing that the supply of choice yellow oils and fine edible white oils are small the world over, it looks like very high prices during this entire season for these fine grades. The buyers in Europe who purchase this season choice yellow oils and fine edible white oils will have to be satisfied with such qualities as this year's bad seed crop will produce and must not expect the quality

of the previous good crops, for it is absolutely impossible to produce high grades this season. On the other hand and for the above reasons the supply of off oils for soap makers will be very abundant.

The foregoing will explain my opinion that all choice oils will rule high this year, and soap-makers' oil will decline in price, when larger supplies come to the markets. To the damage done to the seed crop this year, two additional and very serious difficulties are unfortunately to be added, viz., first, the blockade on all the railroads in the cotton districts, which makes it difficult to get the oil to the seaboard for export, and, secondly, the scarcity of barrels in this country, which delays shipment from the mills. All these matters will explain why the mills are two months late in their deliveries, viz., inability to get good seed, inability to get barrels, and inability to get the railroads to move the seed and oil. All this is unavoidable. The foregoing is an exact picture of our crop, the explanation of the difficulties to make shipments to Europe, and an opinion as to the course of future prices.

SPAIN.

BARCELONA.

IMPORTATION OF COTTON OIL PROHIBITED.

Consul-General Benjamin H. Ridgely, of Barcelona, on March 20, reported that under the law of Spain cotton-seed oil before given admission must be fatally adulterated. He writes:

Cotton-seed oil was formerly imported here in large quantities when it was possible to sell it at from 15 to 20 pesetas ($2.70 to $3.60) per 100 kilos (220 pounds) under the price of olive oil. This was the case when the olive oil crop was small. The imports of cotton-seed oil ceased completely, however, with the promulgation of the law requiring it to be adulterated with petroleum tar. This prohibitive law is still in force, its purpose naturally being to prevent cotton-seed oil from competing with olive oil as an edible product.

Cotton-seed cake and meal are neither imported into Spain nor used here. Waste products from other vegetable oils are occasionally used as fertilizers, but only in very small quantities. As a matter of fact, owing to the backward condition of Spanish agriculture, most of these waste products, which otherwise could be used here to advantage, are exported to England, Germany, and France.

From 500 to 700 bales of cotton linters are imported annually, but their value is not obtainable. They are used for making surgical cotton, and for inferior qualities of yarn. The prices on the quay are from 3d. to 5d. (English) per pound, according to quality.

COMPETING VEGETABLE OILS.

As above stated, cotton-seed oil is not imported and not used, but it may be stated as a fact of possible interest that linseed, sesame, and peanut oils, which compete in price with olive oil, are produced, and are occasionally mixed with olive oil for table use, but only in small quantities, as this process is forbidden by law. Moreover, the public, not being accustomed to these mixtures, imagine (erroneously, it is claimed by the oil blenders) that they are unwholesome.

Owing to the character of Spanish statistics, it is impossible to form any idea of the quantity of each sort of vegetable and nut oil produced. This year, owing to the scarcity of the olive crop, peanuts were ground in unusually large quantities and the oil mixed with olive oil.

It should also be stated in this connection that large quantities of oil are produced here from olive skins, for the extraction of which sulphate of carbon is used. This oil is used in the manufacture of soap and for other industrial purposes. Copra, imported from the Philippines, is also employed here in considerable quantities for oil making. The amount of olive oil produced in Spain in 1906 was estimated at 2,000,000 hectoliters (52,834,090 gallons).

CURRENT PRICES AND CUSTOMS DUTIES.

The average current price from January to August, 1906, was 110 pestas (about $18.30) per 100 kilograms (220 pounds). In September and October the price was 135 pesetas ($23.80), and in December 120 pesetas ($21.25). This year it is estimated that the crop will not reach 1,000,000 hectoliters. In a good year it would be about 4,000,000 hectoliters.

The customs duty on cotton linters is the same as on raw cotton, viz, 1.30 pesetas (about 25 cents) per 100 kilograms (220 pounds). The duty on olive oil is 30 pesetas (about $5.80) per 100 kilograms; on cocoa and palm oils, 8 pesetas (about $1.54) per 100 kilograms; on peanut oil, cotton oil, and all other vegetable oils (except those above indicated) the duty is 27 pesetas (about $5.21) per 100 kilograms.

For the payment of customs duties gold is exacted, and the Spanish gold peseta is reckoned above at its gold value of 19.3 cents, as given by the United States Treasury Department.

MADRID.

COTTON-SEED OIL USED ONLY FOR INDUSTRIAL PURPOSES.

Vice-Consul Maddin Summers, of Madrid, reports under date of April 10 that relatively little cotton-seed oil is used in Spain, which is attributed to its high price. The vice-consul writes:

Prior to July, 1892, there was some importation of cotton-seed oil, which was used to mix with olive oil, one of Spain's largest productions and now the source of great wealth. The mixture of cotton with olive oil detracted greatly from the sale and value of the latter, and to protect it the Government, on July 5, 1892, passed a law which reads as follows:

> In compliance with the law of July 5, 1892, the customs-house officers will mix 1½ per cent of turpentine or petroleum with every importation of cotton-seed or rape-seed oil. The cost of the materials employed to denaturize said oils must be paid for by the importer of the same.

For this reason, therefore, cotton-seed oil can not be used in Spain for kitchen consumption, and consequently is not sold for this purpose. Apart from this it pays a duty of 27 pesetas gold (1 peseta=

19.3 cents) per 100 kilograms (220 pounds), in consequence of which it costs in the market from 125 to 130 pesetas (silver) per 100 kilograms, and is sold in the wholesale drug stores at 2 pesetas per kilogram (1 kilogram=2.2 pounds; 1 silver peseta is equal to about 17 cents).

PRODUCTION AND USE OF OLIVE OIL.

The price of olive oil at the refineries is about 130 pesetas per 100 kilograms, notwithstanding the fact that within the last three years the price has advanced some 12 pesetas. These figures show quite plainly that as long as the present tariff rates exist cotton-seed oil could not be used as an edible product, even though the law did not require it to be denaturized to prevent its being mixed with olive oil. The production of olive oil in Spain is more than sufficient to supply the national demand and large quantities are exported. Some years ago Spanish olive oil was considered abroad as very inferior. Owing to this, to the depreciated value of the peseta, and to the low price of the oil many foreign buyers appeared in the market with the intention of acquiring the oil for industrial purposes. They were greatly surprised to find that what they thought was an inferior quality of oil was in fact a superior quality which, when properly refined, turned out to be an excellent oil. From that time on the Spanish olive oil began to get a foothold in the foreign markets, and every year large quantities are exported. Owing to this demand the price in the last few years has considerably advanced.

In 1905 there were exported 34,228,398 kilograms (75,459,926 pounds), and in 1906 18,911,577 (41,692,463 pounds). During the same years there were imported 7,780 (16,152 pounds) and 67,236 kilograms (148,228 pounds), respectively. The olive oil imported comes, as a rule, from France, and is used solely by the more wealthy classes, who are willing to pay a very high price for it. This oil pays a duty of 30 pesetas per 100 kilograms.

Cotton-seed oil would also find great competition in the edible linseed oil, manufactured in Barcelona, and sold at 120 pesetas per 100 kilograms, casing included. The color of this oil is very much like that of the olive oil, but the class is greatly inferior, for which reason it can not compete.

NUMEROUS COMPETITORS.

For industrial purposes cotton-seed oil finds numerous competitors, as follows:

Oil from the last pressings of the olive.—This oil is produced in large quantities in Spain and is sold at from 60 to 65 pesetas per 100 kilograms. The residuum of the olive, after the extraction of the oil, is submitted to the action of carbon sulphide, which acts as a dissolvent, and is afterwards volatilized. In this way oil is obtained from the last pressings. It is used to a great extent in the manufacture of brown and common soap. As the first material is produced in enormous quantities in Andalusia and Aragon, it is not to be wondered at that huge quantities of this oil are manufactured, or that the price is so low, taking into consideration its origin.

Cocoanut oil.—Omitting that of Cochin China, which is only used by perfumery dealers, the only oil of this class used is that of Ceylon.

It is employed principally by the soap manufacturers of Catalonia in the making of a white soap called "Mora." It is also used in other provinces, but not to so great an extent. The price ranges between 90 and 100 pesetas per 100 kilograms, and the soap produced is of excellent quality.

Palm oil.—Imported from the Philippines and Fernando Po. It is quoted in the markets at the same price as the cocoa oil, though it is dirtier. Both this oil and that of the cocoa pay only 8 pesetas per 100 kilograms duty, and for this reason have an advantage over cotton-seed oil.

Linseed oil.—This oil, used exclusively in the preparation of paints, is worth 100 pesetas per 100 kilograms, and is largely produced in Spain. As already shown, cotton-seed oil can not compete with this linseed oil.

Sesame oil.—Used for perfumery purposes and sold at 105 pesetas per 100 kilograms.

Castor oil.—There are two qualities of this product—the medicinal and the industrial. The price of the latter is about 112 pesetas per 100 kilograms.

Peanut oil.—This is produced in Spain and is used for what cotton-seed oil was formerly employed. By reason of its great similarity to olive oil, it is used for mixing with that article. It is not used for industrial purposes on account of its high price, which ranges from 120 to 125 pesetas per 100 kilograms.

Tallow.—This grease, besides being produced in large quantities at home, is largely imported from London, Hamburg, and Marseille. It is used largely in the manufacture of candles and soap, for which purpose the stearin and olein, respectively, are extracted. Owing to the cheapness of electric lighting throughout Spain, especially in the small towns, the candle industry has greatly fallen off in the last few years. According to the tariff laws in existence prior to July, 1906, tallow paid a duty of 1 peseta per 100 kilograms, gross weight, and now it pays only 0.80 peseta per 100 kilograms, which amounts practically to free entry.

COTTON-SEED MEAL.

The meal made from barley and vetch, and also alfalfa hay, are the main feedstuffs in Spain for cattle, and especially for milch cows. These articles are produced in large quantities in this country. Some cattle owners—very few, however—use other feedstuffs, mostly a substance called "molassine," which is the residue left after the extraction of sugar from the beet root. In the eastern part of Spain cocoanut-oil cake is fed to cattle. This product is made in Catalonia. But as a rule cattle owners are averse to using any sort of feedstuff with which they are not perfectly well acquainted, and to which they have no need to resort, as the feed products of the country as well as green forage are cheap.

CULTIVATION OF THE FIBER.

In regard to raw cotton itself there has been a premium of 50,000 *pesetas* offered by the minister of agriculture to anyone who would *cultivate* cotton in Spain and reach a given standard. Many efforts

were made, but the premium has not yet been awarded, as the class of cotton produced was not up to the requirements. The bad results are attributed to the fact that the cultivation of cotton here is not understood; but the fact is that the soil is not the sort required for growing cotton. The almost annual droughts would always stunt the growth of the plant.

VALENCIA.

IMPORTATION PROHIBITED.

Consul H. Abert Johnson, writing from Valencia, March 18, reports that cotton-seed products are not imported at present into that section of Spain. He continues:

Cotton-seed oil was formerly used in this district to blend with olive oil for food purposes, especially in seasons of shortage in olive crop, but it was pronounced by Government analysts to be prejudicial to public health, and as such its importation was totally prohibited some fifteen years ago. Its importation at present is only permitted in a denaturized state, and it is mixed with tar products before passing Spanish custom-houses.

Small sample lots of cotton-seed cake have been imported for experimental purposes as fertilizers, but such trials have not contributed to develop trade in this direction, as the results are not considered sufficiently satisfactory from an economic point of view to justify its employment with the superphosphates, sulphates of ammonia and potash, nitrate of soda, and bone and animal refuse, of which over 90,000 tons are imported annually in this district as fertilizers for the cultivation of fruit, rice, and vegetables.

The sale as olive oil of any other oil, or blending of oils, is prohibited by law, and the tastes and prejudices of the inhabitants, moreover, are strongly opposed to the introduction of any other oil for cooking purposes. In competitive oils and greases for industrial purposes over 9,000 tons of copra, sesame, and similar products were imported here last year for the production of oil for soap manufacturers, these imports coming, in the order of importance, from the Philippine Islands, Singapore, British India, and Mozambique.

SEVILLE.

COTTON-SEED PRODUCTS UNKNOWN.

Consul L. J. Rosenberg, of Seville, reports, April 12, that neither cotton-seed oil nor cotton-seed products of any kind are used in that district, and that with the exception of a very small quantity of cocoa oil olive oil is practically the only oil used. The consul continues:

It is commonly understood that this district produces the purest olive oil. At *least such* is the reputation of the district, and shippers

are anxious that this reputation be maintained. It is also stated that the bulk of exportations of olive oil from this district goes to Germany and Great Britain, in which countries it is used for oiling machinery. The Seville shippers claim that the mixture of olive oil with cotton-seed oil takes away much greasiness, a quality indispensable to machinery oil. This, coupled with the desire of maintaining Seville's reputation as the "pure olive-oil district," are the reasons given why the shippers of Seville, unlike those of many other places, would not mix their oil with cotton-seed oil.

There is no discrimination by the Government against cotton-seed oil, but the duty is high—27 pesetas ($5.21) per 100 kilos (220 pounds), gross weight.

TENERIFFE.

NO IMPORTATIONS INTO CANARY ISLANDS.

Consul Solomon Berliner, of Teneriffe, reports, February 27, that cotton-seed oil, cake, meal, or linters are not used in the Canary Islands. All the oil that is imported into the islands for edible purposes comes from Spain, but much of this so-called "olive oil" is either cotton-seed oil or contains a part mixture of it. The products of cotton seed pay no duty, but on oils of all kinds there is an octroi tax. The wholesale price ranges from 24 cents to 29 cents per 1.057 quarts.

NORWAY.

CHRISTIANIA.

IMPORTS AND PRICES—TEXAS MEAL PREFERRED.

Consul-General Henry Bordewich writes that the import of cotton-seed oil into Christiania is estimated by dealers at 2,000 tons (4,400,000 pounds) per annum and that the importations are steadily increasing from year to year. The consul-general continues, writing under date of March 25:

It is impossible to obtain exact figures, for the reason that cotton-seed oil is not given separate classification at the custom-house, but is entered promiscuously with several other oils. Cotton-seed oil is largely used in the margarine factories; some is used also in canning establishments, and the poorer qualities in soap factories. As a rule the manufacturers import the oil themselves without middlemen. The purchases are generally made in the spring and summer months. On inquiry at several margarine factories I learn that "summer yellow" and "winter white" are the qualities preferred. Prices are so fluctuating that it is difficult to name any average price.

Cotton-seed oil arrives put up in large casks holding from 374 to 396 pounds. Price is stipulated in English money per hundredweight (112 pounds). Cotton-seed oil is, according to official statistics, imported to Norway from the United States, Great Britain, Holland, Germany, and France. The larger portion of it is American oil.

Cotton-seed oil comes in competition with oleo oil, neutral lard, cocoa oil, arachis (or peanut) oil, and olive oil. All of these oils are used in margarine factories, but the peanut and olive oils are principally used in the fish-canning establishments. The peanut oil is claimed to be quite a superior article. Prices on all of these oils are mainly determined by the large dealers in Chicago, Rotterdam, and Paris, the larger portion of the goods by far being imported from America, Holland, and France.

LIMITED USE OF COTTON OIL.

Cotton-seed oil, being a comparatively new article, is not made use of in the quantities and for as many purposes as it deserves. In the following statement, compiled from the last published official statistics, is given the average annual import, price, and value of some of the competing articles, as far as the same can be separated and ascertained, for the Christiania consular districts:

Article.	Quantity.	Per pound.	Value.
	Pounds.	*Cents.*	*Dollars.*
Oleo oil and neutral lard	9,000,000	10¾	967,500
Olive oil	190,000	12	22,800

The average annual import to the whole Kingdom of Norway of such of these articles as are classified may be placed at 22,240,000 pounds oleo oil and neutral lard and 1,383,800 pounds olive oil. A portion of the article imported under the name of olive oil is in all probability peanut oil and cotton-seed oil appearing under aliases, mixed or unmixed, with other oils. Prices on edible oils and lard are very fluctuating. To quote average prices is difficult. Prices on certain grades of cotton-seed oil c. i. f. Christiania in 1907 were quoted February 2 as follows: Choice butter oil, $7.97 per hundredweight (112 pounds); summer yellow, $7.67. March 18 choice butter was quoted at $8.55. No quotation of winter white.

Prices on other edible oils and lard on January 31 were:

Choice neutral lard	per cwt	$13.14	
Imitation neutral lard	do	12.40	
Extra oleo oil	do	12.52	
Oleo oil No. 2	do	12.16	
Extra oleo stock	do	13.14	
Oleo stock No. 2	do	12.52	
Cocoa oil	per pound	.11	
Arachis oil:			
Ruffisque extra	per 220 lbs	21.80	
Arachis oil—Continued.			
Ruffisque	per 220 lbs	$20.65	
Gambie	do	19.50	
Olive oil:			
Best quality	do	28.95	
Second quality	do	27.00	
Lower quality	do	25.10	
Bottled	per liter	$0.54–.63	

As far as I am able to learn, cotton-seed linters have not as yet been imported into Norway.

SEED CAKE AND MEAL.

The average annual import of these articles may be placed at 40,000,000 pounds, valued in the custom-house statistics at $3.28 per 220 pounds. At least two-thirds of this is imported to the Christiania district. Prices ruling at the present writing are: Cotton-seed meal, $33.80 per 2,240 pounds, c. i. f. Norwegian ports; cotton-seed

cake not quoted. The quantity of the import varies much from year to year, depending on the season's crops of hay, turnips, and potatoes. Cotton-seed meal is used exclusively as feed for domestic animals and is highly prized by the farmers as such. Prime bolted and decorticated Texas, with a warranted analysis showing 54 to 56 per cent protein and fat, are preferred. The brands known as prime cotton-seed meal and prime bolted cotton-seed meal are in less demand. I am told that the last-named article will find a market, provided it is made in Texas. The people over here appear to have a prejudice against meal coming from other States, many of the consumers claiming that meal from Texas is far more nutritious than meal coming from Louisiana, Arkansas, and Mississippi. Cotton-seed meal is now imported directly from the United States. A few years ago it was handled nearly exclusively by German jobbers. It is said that the meal was reground in Germany and thereafter sold to other European countries. Of cotton-seed cake, the imports into Norway are light. Cotton-seed meal arrives packed in sacks holding 100 kilograms and 75 kilograms. Prices are quoted in English money for English or long ton of 2,240 pounds.

COMPETITION.

Cotton-seed meal and cake comes primarily in competition with corn, linseed meal, gluten meal, and peanut cake. The annual reports to my district of these articles as far as I am able to ascertain are: Corn, 15,180,000 pounds; linseed meal and cake, 550,000 pounds; gluten meal, 1,100,000 pounds.

The imports to the whole Kingdom are, corn, 30,146,600 pounds, valuation at custom-house $2.60 per 220 pounds; linseed meal, 660,000 pounds, valued at $3.22, and gluten meal, 1,166,000 pounds, valued at $2.15.

There is of late considerable import to my district of peanut cake. Prices quoted January 31, c. i. f. Christiania, were $35.70 to $36.20 per long ton for both peanut ruffisque and koromandel. This article when imported in large lots generally arrives in bulk in ships' hulls, not in sacks—principally in small sailing vessels carrying 300 to 400 tons. It is bought from France and Holland. The peanuts are by these countries imported from Algeria. Prime bolted and decorticated Texas cotton-seed meal was quoted March 25 at $34.80 per long ton. The market price on corn averages 60 cents per bushel.

ADULTERATION CHARGED.

The consul-general forwards the following translation of an article taken from a local newspaper:

Mr. Hals, chemist in the Norwegian department of agriculture, made some statements at the last session of the farmers' union which are likely to draw the attention of the agriculturists.

Of the costly cotton-seed meal, which is so freely used, large quantities are sold holding as low as 30 per cent protein and fat, while the regular pure and unadulterated article holds on an average from 54 to 60 per cent. The adulterated article has nevertheless been sold at about the same prices as the prime goods.

The best qualities of peanut meal holds about 58 per cent protein and fat. One sample which was analyzed gave only 8 per cent. It was largely mixed with the shells of the nuts and held 66 per cent cellulose, and was worth but little more than sawdust.

The expensive linseed meal has also been subject to adulteration. This has gone so far that out of 93 analyzed samples the station declared 10 as adulterated and 10 others as impure. No adulteration was found in linseed meal delivered from Norwegian mills.

BERGEN.

SUGGESTION FOR DOUBLING IMPORTATIONS.

Consul Felix S. S. Johnson, of Bergen, reports, March 5, that it is only a few years since cotton-seed oil found a market in Norway. The consul writes:

In this consular district it is used in the manufacture of oleomargarine and cocoa oil. Orders for these articles are made through European commission houses. Each year shows a marked increase in cotton-seed oil importations at Bergen, and I believe that if the manufacturer and the importer could arrange to do business directly the sales would be doubled in a very short time. Cotton-seed linters are not used in this consular district.

The only oils which cotton-seed oil comes in competition with are peanut and sesame oils, both imported from Africa, the former being 30 per cent higher in price than olive oil. As those oils are not directly imported into Bergen, I am unable to give the aggregate annual quantity and value of the sales. In 1905 there were imported direct from New Orleans 868 tons of cotton-seed meal, and in 1906 6,659 sacks from Galveston, Tex., both of which shipments were made to Stavanger. Bran and other oil cakes are the only competitors of cotton-seed cake or meal in this or other Norwegian ports.

As an edible oil there is no discrimination on the part of this Government against cotton-seed oil, as is seen by the following statement of customs duties, the rate being in kroner per kilo, or 2.2 pounds (krone=26.8 cents):

IMPORT DUTY PER KILO ON COTTON-SEED PRODUCTS AND COMPETING ARTICLES.

Article.	Maximum.	Minimum.
	Kroners.	*Kroners.*
Cotton-seed oil	0.03	0.06
Cotton-seed meal	Free.	Free.
Cotton-seed cake	Free.	Free.
Olive oil	.06	.04
Butter, all kinds	.25	.15
Tallow, oleomargarine	.06	.04
Lard and fat	.13	.10

Imports from the United States pay the minimum rates.

I do not believe that the sale of cotton-seed meal or oil cakes can be increased in this consular district, as it is not an agricultural county, but a great fishing port. Olive oil is used altogether in putting up Norwegian sardines, but I am of the opinion that in time many manufacturers can be prevailed upon to substitute cotton-seed oil, which would create a constant demand for this article, not only at Bergen but at other fishing ports in Norway.

IMPORTS OF COMPETING ARTICLES.

The value of tallow and oleomargarine imported into Norway in the years 1904 and 1905, with countries of supply, are shown in the annexed statement:

IMPORTS OF OLEOMARGARINE AND TALLOW, 1904 AND 1905.

Whence imported.	1904.	1905.
	Kroners.	*Kroners.*
United States	2,517,300	1,841,300
Denmark	1,314,600	2,759,300
Germany	1,150,300	1,485,200
Belgium	75,408	20,400
Great Britain	972,000	1,338,000
France	58,200	85,600
Netherlands	46,200	88,300

Importations of olive oil in 1905 were received from Great Britain to the value of 19,300 kroner; France, 427,900; Spain, 16,700; Italy, 39,600. In the same year linseed cakes, oil cakes, and oil meal were received from Belgium to the value of 315,000 kroner.

STAVANGER.

GROWING POPULARITY OF COTTON-SEED PRODUCTS.

Consul B. M. Rasmusen, of Stavanger, reports that cotton-seed products imported into Norway are combined in the official statistics with oils from plants and feedstuffs. Inquiry among customs officers and merchants enables the consul to present the facts contained in the following report, which is dated February 27:

Cotton-seed oil and cotton-seed meal are used in increasing quantities in this district. Of choice butter oil, which is used in the manufacture of artificial butter, the import in 1906 was 677,500 pounds, valued at $45,831. During the same period the import of cotton-seed meal in bulk, to be used as cattle fodder, was 3,030,484 pounds. The price during the spring and early summer was about $36 per long ton, but rose to $41 in the fall. The aggregate of cotton-seed meal imported was 3,030,484 pounds, valued at $50,125. Cotton-seed linters are not used here. The principal increase in cotton-seed imports has

occurred in the last two years, but the ratio can not be stated owing to the fact that the statistics of imports combines them with oils from plants and feedstuffs. There is no discrimination of any kind against cotton-seed oil.

COTTON OIL AND ITS COMPETITORS.

In the manufacture of artificial butter cotton-seed oil enters into competition with lard, oleomargarine, cocoanut oil, and peanut oil. No cocoanut oil was imported for this purpose in 1906, however. The following table gives the quantity, price, and net value of oils and fats imported and manufactured into artificial butter in 1906:

Article.	Quantity.	Price per cwt.	Value.
	Pounds.	*Dollars.*	*Dollars.*
Cotton-seed oil	677,500	6.75	45,881
Lard	689,500	10.40	71,708
Oleomargarine	2,965,000	.....	308,360
Peanut oil	440,000	9.21	40,524
Total	.....	.....	466,423

A letter received from a manufacturer of artificial butter, sent in response to my request for a statement of the amount of cotton oil imported in 1906, states that the consumption of cotton oil is increasing, and will continue to do so if the quality remains as good as it is at present. It is interesting to note that while the use of cotton oil has increased, the importation of peanut oil, its main competitor, has decreased by one-half, and cocoanut oil does not enter into the competition now. More than 2,000,000 pounds of olive oil was also imported, but as this oil is used for sardine packing exclusively it does not affect the use of cotton oil as yet.

Experiments have been made with cotton oil as a substitute for olive oil in the packing of sardines. I have been informed by one of the leading sardine packers that the result was most satisfactory, and even experts were unable to distinguish the difference between the two oils. The export of fish canned in oil from Stavanger to the United States exceeds half a million dollars annually, and if the American consumers of canned fish products would take the same view that experts have of the two oils mentioned there would soon be an unprecedented demand for cotton-seed oil.

COTTON CAKE AND MEAL.

The only feedstuffs imported in 1906 were cotton-seed meal and corn. When the price of corn is high, the use of cotton meal increases. This was the case in 1905, in which year there was no import of corn, but the use of cotton-seed meal increased considerably, resulting in a whole ship cargo being imported from Galveston. The total import of corn in 1906 was 67,832 bushels, at 60 cents per bushel, amounting to $40,700.

INFLUENCE OF IMPORTING SYNDICATES.

Importing syndicates at Hamburg and elsewhere have long enjoyed a monopoly on the sale of cotton meal imported into Norway. Numerous attempts were made by importers in Stavanger in 1904–5 to import the article direct from the mills in the United States, but these efforts were successfully resisted by the syndicates. The names and addresses of cotton-seed mills in the United States were furnished to the importers by this consulate, but they were unable to get quotations on cotton-seed meal either from the mills or transportation companies, although other staple articles, such as corn, wheat, flour, rice, sirup, etc., are always quoted c. i. f. Stavanger. In November, 1905, I reported the first ship cargo ever sent from the United States to Stavanger. This was a shipment of cotton-seed meal which the syndicate at Hamburg suffered to go direct, after exacting the usual commission.

SWEDEN.

GOTHENBURG.

IMPORTATIONS AND CONSUMPTION.

Consul Robert S. S. Bergh, of Gothenburg, reports as follows under date of March 20:

Cotton-seed oil and cotton-seed cake and meal are imported and used in Sweden, but as the Swedish statistics do not mention these articles under separate or special headings it is not possible to say to what extent they are used. Cotton-seed oil is included under the heading "Fat oils, other kinds," and cotton-seed cakes are included under the heading of "Oil cakes." A committee is at present working on a revision of the customs tariff and on a list for better specification of imported goods, and I am informed that cotton-seed oil will be specified in the import statistics from and with the beginning of this year. I am informed that cotton-seed linters are imported in limited quantities for wadding purposes.

OIL AND COMPETING ARTICLES.

The highest qualities of cotton-seed oil are imported and used for the manufacture of artificial butter (margarine); lower qualities for the manufacture of soap. It is said that the import for the latter purpose has decreased lately, because it has been found that corn oil is cheaper. The largest quantity of cotton-seed oil used here for the manufacture of soap is a cheaper and lower grade coming from England, where it is pressed from Egyptian and Indian cotton seed. Such oil is used only when it can be had cheaper than corn oil and linseed oil. The better class of cotton-seed oil used for margarine, etc., comes chiefly from America.

For butter purposes cotton-seed oil competes with peanut oil, cocoa oil, sesame oil, tallow, etc. According to the Swedish margarine law, artificial butter must contain 10 per cent of sesame oil, and margarine cheese must also contain a fixed proportion of sesame oil.

For soap purposes cotton-seed oil competes with linseed, corn, whale, seal, and cod oils, tallow, etc. Besides the linseed oil imported, considerable quantities of this oil are produced within the country from linseed imported and pressed here. A little ordinary olive oil may also be used.

Higher qualities of olive oil are imported in bottles chiefly from France and Italy, and are comparatively expensive. Other edible oil is imported in barrels and sold in small quantities in the grocery stores at lower rates. These two classes of edible oil are together called salad oil. Salad oil, as such, is not much used in this country, but butter and margarine are consumed in considerable quantities. For frying and cooking purposes artificial lard (cocoanut butter, etc.) is also used a little, and natural lard in larger quantities. The sale of cotton-seed oil here, for margarine and soap manufacture, etc., will no doubt depend on the prices, compared with the prices of other oils for the same purposes.

I do not know of any legal restrictions or any popular prejudice against cotton-seed oil.

COTTON-SEED CAKE AND MEAL.

Cotton-seed cake or meal as feedstuffs have to compete with linseed, peanut, rape, corn, sunflower cakes, etc.; further with gluten feed, wheat and rye bran, oatmeal feed, rice-meal feed, molasses feed, and other feeds. Our consular agent at Malmö, who is well acquainted with cattle raisers and producers of butter, reports as follows:

"During the last three years cotton-seed cakes have been imported into Sweden, and of late the import has greatly increased. These cakes were at first imported from New Orleans, but as the quality deteriorated immensely import from there has almost ceased. Cakes are now imported from Texas. They are of choicest quality, and in case they keep up quality the import from there will increase."

IMPORTS FOR 1905.

Although the desired specifications can not be furnished, it may be of interest to see how much oil, cattle feed, etc., Sweden imports. Following are figures for the year 1905, the latest complete statistics issued. Quotations for cotton-seed oil, corn oil, and sesame oil are not available. I understand these oils are sold by agents on telegraphic quotations received by them from their respective houses in countries of export.

IMPORTS OF OILS, GREASE, AND FEEDS INTO SWEDEN, 1905.

Article.	Quantity.	Value.
	Pounds.	*Dollars.*
Glycerin		85,208
Lard and leaf lard, natural and artificial	4,279,293	358,940
Oleomargarine	563,023	54,755
Oleine	2,304,838	112,073
Oils, fat (volatile vegetable oils, lubricating and fossil or mineral oils, croton oil, train oil, and boiled linseed oil not included):		
Linseed and rape-seed oils	1,035,670	56,654
Other kinds (including olive, hemp, palm, castor, nut, cotton-seed, etc.)—		
In barrels or casks	31,997,418	1,944,849
In other receptacles	363,519	55,238
Spermaceti	2,500	760
Tallow	10,778,130	681,314
Whale, seal, and cod oil	3,113,080	158,942
Bran, all kinds	297,749,460	3,619,525
Cattle feed:		
Oil cakes, rape-seed, linseed, sunflower-seed cakes, etc	226,374,529	3,439,809
Other kinds, gluten feed, etc	36,850,842	313,578
Imports from the United States.[a]		
Lard	2,662,517	223,328
Cattle feed:		
Bran	8,796,241	106,930
Oil cakes	2,745,504	41,719
Other kinds	13,477,211	114,683
Oleomargarine	278,116	27,066
Oils, fat (mineral oils, etc., excluded)	11,460,562	697,692
Tallow	2,579,851	163,079

[a] Statistics are not reliable as to the origin of the goods imported, and it is probable that the quantities coming from the United States were really larger.

WHOLESALE PRICES OF IMPORTS.[a]

Article.	Price per 100 pounds.	Article.	Price per 100 pounds.
	Dollars.		*Dollars.*
Olive oil, common:		Bone-dust feed	1.82
Messina	9.48	Bran	1.22–1.24
Malaga	9.11	Corn cakes	1.56
Linseed oil, unboiled	6.08	Corn-cake meal	1.55–1.61
Rape-seed oil:		Cotton-seed cakes	1.76
Raw	8.02	Cotton-seed meal	1.79
Refined	8.27	Gluten feed:	
Salad oil, in barrels or casks:		Globe No. 1	1.43–1.55
Superfine	[b].33	American	1.49
Fine	[b].28	Linseed cakes	1.73–1.98
Lard, artificial	8.00	Linseed meal	1.79–2.04
Margarine:		Molasses feed, in bags	1.16
Cream—		Oat-meal feed	.85–1.40
S 1	16.00	Oats for feed purposes	1.40
S 2	14.00	Peanut cakes, French or Argentine	1.85–1.90
Common—		Rape-seed cakes:	
S 3	13.00	French	1.46
S 4	10.00	German	1.52
Seal oil:		Rice-meal feed	1.28
Train oil, in barrels	5.00	Sunflower-seed cakes, Russian	1.61–1.76
Norwegian, in barrels	4.00		
Tallow, prime	7.00		

[a] Quoted from a recent issue of the Gothenburg Market Report.
[b] Per quart.

IMPORT DUTY.

Article.	Duty per pound.
	Dollar.
Linseed and rape-seed oils	0.0085
Other fat oils, not volatile:[a]	
In barrels, large or small	Free.
In other receptacles	.006
Margarine and butter	.0244
Oleomargarine	.0244
Oleine	Free.
Oil cakes, bran, and other cattle feed not otherwise specified	Free.
Spermaceti, tallow, whale, seal, and cod oils	Free.

[a] *Croton* oil, volatile vegetable oils, fossil or mineral oils, and oils produced by *dry distillation* not included in the above.

There is also an ad valorem duty of 5 per cent on glycerin.

As I believe that the uses, quality, or properties of cotton-seed oil and meal are not generally known in certain countries, I would suggest that American manufacturers have analyses made of their products with reference to nutritive properties or chemical composition, and necessary experiments or tests with reference to the uses for which such oil and meal can be employed with equal or better advantage than other oils and meal. Furthermore, that the results of such analyses be published in small pamphlets with suitable recipes for cooking, etc., and that the pamphlets be translated into different languages for distribution in foreign countries. The pamphlets could be distributed among retail dealers, bakers, and others, by agents or commission merchants, through arrangements made by the American exporters or American consuls.

RUSSIA.

ST. PETERSBURG.

USE OF NATIVE PRODUCTS—IMPORTATIONS SMALL.

Consul-General Ethelbert Watts, of St. Petersburg, writes under date of February 28:

Cotton-seed oil and cotton-seed cake are used in Russia, and their consumption is increasing, but practically none is imported from America at present, as Russia herself is growing cotton and has several cotton-seed oil factories in Turkestan engaged exclusively in pressing oil from native cotton seed. Recently, since cotton seed from Turkestan has been brought by the Central Asiatic Railroad to European Russia, several new factories for this purpose have been built at Nizhñi Novgorod and at Odessa.

Cotton-seed oil in this country has been mostly used in connection with the manufacture of soaps of different grades, and recently, on account of the advance in price of cocoanut oil, cotton-seed and rape-seed oil are being used largely in the place of it for certain burning purposes, particularly for burning before ikons, a general custom in this country. It is estimated that the annual consumption of mineral and vegetable oils for burning or lamp use reaches about 72,000 tons. Russian cotton-seed oil has not as yet become a food product in this country, although it is claimed that its richness in quality would entitle it to such use.

ACTIVITY OF LOCAL MILLS.

Vegetable oils used in Russia for food purposes are principally made from hemp seed and sunflower seed. Of late refined cocoanut oil is being extensively sold for table use. The duty on cotton-seed oil is $1.70 per 36 pounds, but the Russian Government does not discriminate against any oils used as human nourishment. About five hundred factories are at present engaged in the manufacture of oils in Russia, situated especially in Riga, Libau, St. Petersburg, and Odessa, besides other cities and towns of the Empire. The activity

of these factories is very pronounced in the export of oil cakes, which at the present time has increased to 450,000 tons per year. The following table shows the statistics from 1880 to 1901 in quantity and value of oil cake produced in Russia:

OIL CAKE PRODUCED IN RUSSIA, 1880–1901.

Year.	Quantity.	Value.
	Tons.	*Dollars.*
1880	30,510	906,915
1890	142,182	3,095,696
1897	359,730	7,080,529
1898	749,304	7,835,145
1899	878,562	8,228,670
1900	802,872	7,997,950
1901	848,024	8,622,645

EXPORT OF SEEDS AND CAKE.

Russian exports of seeds from which oil is made and of oil cake are shown in the following tables:

EXPORTS OF OIL SEEDS AND OIL CAKE, 1897–1901.

Seeds or cake.	1897.	1898.	1899.	1900.	1901.
Seeds:	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Linseed	595,530	183,230	242,910	609,876	82,170
Hemp seed	11,358	7,956	24,462	11,718	8,694
Poppy, sunflower, and other	10,332	12,420	22,230	20,916	11,806
Rape seed	100,530	168,948	165,368	71,298	23,418
Total	717,750	272,554	454,970	713,808	126,090
Oil cake:					
Linseed	177,812	221,076	271,526	143,816	148,878
Hemp seed	29,232	19,746	19,512	25,142	31,884
Sunflower	76,289	50,202	100,836	150,678	148,960
Rape seed	52,352	50,778	66,497	49,379	49,572
Other seed	27,450	32,850	30,960	32,976	41,778
Total	263,135	374,652	489,331	401,991	424,062

I have not been able to find later statistics than the above, but am informed that both the production and the exportation have been increased somewhat since 1901.

MOSCOW.

PRICES, DUTIES, AND IMPORTATIONS.

Consul Samuel Smith, under date of April 4, reports that no cotton-seed oil is imported into the Moscow consular district on account of the almost prohibitive duty, which is equal to $1.70 per 36 pounds. The local demand for cotton-seed oil is entirely supplied by the Central Asian cotton-oil industry. The consul further reports:

Cotton-seed oil is used here as a substitute for and ingredient of olive oil, lard, etc., and largely in the manufacture of soap. Central

Asian cotton-seed oil is sold here at $2.25 per 36 pounds and is shipped to the Moscow market from Kokand, Central Asia. The freight and expenses from Kokand to Moscow amount to about 75 cents per 36 pounds. Statistical data as to the aggregate quantity and value of the various kinds of oils sold are not available. It is estimated, however, that approximately 19,355 tons of cotton oil are sold on the Moscow market.

The following prices are quoted in Moscow at present (April 4): Olive oil, $4.60 per 36 pounds; cocoanut oil, $4 to $4.25 per 36 pounds; palm oil, $4 per 36 pounds; hemp-seed oil, $2.75 to $3 per 36 pounds; sunflower-seed oil, $2 to $2.10 per 36 pounds.

According to official data the following quantities of oil were imported into Russia in 1905 and for eleven months of 1906, returns for December not being available:

Oil.	1905.		1906 (11 months).	
	Quantity.	Value.	Quantity.	Value.
	Tons.	*Dollars.*	*Tons.*	*Dollars.*
Olive	9,387	1,454,000	7,661	1,306,000
Palm	3,516	436,500	645	92,000
Cocoanut	435	60,000	4,516	576,500
Other vegetable	355	71,500	436	81,500
Cotton-seed	13	2,500	10	1,000
Total	13,706	2,024,500	13,268	2,057,000

Cotton-seed cake or meal is not used in the Moscow district, either as a feedstuff or as an ingredient of commercial fertilizers.

RIGA.

OIL CRUSHING A GROWING LOCAL INDUSTRY.

Consul Alexander Heingartner reports from Riga, March 19, that there is no import at that port of cotton-seed oil, cotton-seed cake or meal, or cotton-seed linters. The consul continues:

The competition the cotton-seed products would meet in this market, besides butter, lard, etc., are the productions of the Russian crushing industry. The articles used by this industry as raw material are the indigenous oleaginous seeds—linseed, hemp, rape, and sunflower—and the imported copra. Copra was introduced into Russia in the last quarter of the last century about simultaneously by Riga and St. Petersburg crushers, and the extraction of oil from it has developed into an important industry, the chief seat of which is in the harbor cities of the Baltic, there being three mills in St. Petersburg, three in Riga, and one in Libau, against two in Odessa and one in Sosnowice. The oil does not compete with that from indigenous seeds, as it is chiefly used in soap manufacture to replace tallow, in which article Russia is deficient, the demand from the eastern governments being very large, besides which cocoanut oil mixed with rape-seed oil and vaseline is used for ritual purposes in place of the expensive imported olive oil.

The amount of copra imported into Riga for the year 1906 amounted to 10,240 metric tons (metric ton = 2,204 pounds); the amount of cocoanut cake exported for the eleven months January to November aggregated 1,950 tons; and as the by-product is estimated at 35 per cent of the weight of the original copra there remained 1,640 tons for domestic consumption. No oil was exported in 1906. The average price of the cake was $30.75 per ton; that of the oil $150.60 per ton.

COPRA AND LINSEED.

Linseed is the chief raw material of the Riga crushing industry, which pressed in 1906 approximately 12,530 tons, or 78,000 barrels, of oil and 17,680 tons of cake. As no official statistics are published, these figures were obtained privately and are only approximately correct. The quantity of linseed cake exported from Riga for the first eleven months of 1906 was 66,000 tons, against 61,730 tons for the year 1905. The average price of cake was $32.70 per ton and for oil $160 per ton, of which but 30 tons were exported.

Besides these staples, exports from this port during the eleven months of 1906 were hemp-seed cake 1,500 tons and rape-seed cake 700 tons. The price of the former averaged $22.45 per ton, the latter $27.90 per ton. No oils of these seeds were exported. The local price of hemp-seed oil was $144.20 per ton, rape-seed oil $224.30 per ton.

PRODUCTION OF EDIBLE OILS.

Other edible oils produced in Russia are sunflower-seed oil and trans-Caucasian cotton-seed oil. The former is chiefly pressed in the interior, and enters largely into the fare of the Russian people as a substitute for olive oil, costing $589.65 per ton. Its price in Riga is $205.10, that of cake $30.12 per ton. There is no export from this port of either oil or cake. A small quantity of trans-Caucasian cotton-seed oil was brought by rail to Riga, selling for $188.50 per ton. It is reported that the Government proposes quoting special freight rates for these articles to Russian centers to foster the local industry. The imports of foreign vegetable oils into Riga for the year 1906 were about 350 tons and consisted of olive, castor, palm, etc., but no American cotton-seed oil.

Of American lard the import was 2,940 tons. The export of butter, chiefly to Denmark and England, amounted to 28,720 tons for the first eleven months of 1906. Export prices for butter are from 15 to 22 cents per pound according to quality. The duty on cotton-seed oil is $1.70 for 36.112 pounds.

BATUM.

EXPORTS TO GERMANY.

Consul William W. Masterson, of Batum, writing under date of March 15, reports that cotton is grown extensively in the Caucasian provinces of Elisavethpol and Erivan and also in the central section of Asiatic Russia. The consul further reports:

All cotton grown in the Russian Caucasian provinces is bought up when in its growing state by agents from the spinning factories at

Lodz and Warsaw, and none of it is sold in the markets abroad. I am unable to find out at present how extensively the cotton seed and cotton-seed oil is used in this country, as there are no official statistics on the subject, but the export returns for the port of Batum for the year 1906 show that during the year there were exported to Germany 24,874,272 pounds of cotton-seed cake and 421,740 pounds of cotton seed. The value of these shipments has not been given. No other country has purchased these products except Germany, and I understand they were exported as feedstuff.

GREECE.

ATHENS.

OIL IN BUTTER MAKING—IMPORTATIONS AND DUTIES.

Consul-General George Horton, of Athens, makes the following report under date of March 1:

Cotton seed and cotton-seed cake are not imported into Greece. Some six years ago the oil was imported from Egypt by the butter merchants, who mixed it with their product. Recently palm oil has supplanted cotton-seed oil, as the butter men of this region believe the former is more nutritious than the latter and its use less easily detected. The price paid for the Egyptian cotton-seed oil was $11.60 per 220 pounds, and it paid an import duty of 5.79 cents per 2.8 pounds when brought in bulk. It sold for 23.2 cents to 27 cents per 2.8 pounds, and about 84,000 pounds were imported annually. Cotton-seed linters are not used.

OILS AND FATS.

Greece is an olive-oil producing country. In good years the crop reaches as high as 7,000,000 gallons. Palm oil is the product which has been principally imported into this country for mixing with butter. In 1905 the import duty on palm oil was only 5.79 cents per 2.8 pounds. In order to prevent the adulteration of butter the duty on palm oil was twice raised, but without avail. Finally a duty of 57.9 cents per 2.8 pounds was levied, and it is believed this will be prohibitive. In 1906 alone 336,000 pounds were imported. Denatured palm oil, for use in soap making, is imported free of duty.

In 1905 there were imported more than 98,000 pounds of edible tallow, and the duty was 7.7 cents per 2.8 pounds. Little lard is imported, as the native production suffices for the consumption.

The importation of cotton-seed oil into Greece was discontinued several years ago. A prohibitive duty having been laid on palm oil, it is possible that there may again be a demand for cotton-seed oil in limited quantities. The duty on cotton-seed oil has not been raised. It remains at 30 centimes the oke, about 2 cents a pound.

The amount of olive oil consumed in Greece annually is about 48,000,000 to 50,000,000 pounds, the amount raised in good years as in 1905, 84,000,000 pounds, and the quantity exported 7,100,000 pounds in 1905. It will thus be seen that the production more than suffices for the local consumption.

Fine olive oils of known brands are not manufactured to any extent in Greece. The oil is exported largely as commercial oil at from 40 to 60 cents per gallon. On account of its cheapness it has not seemed profitable to the producers to import any substance to mix with the oil.

COTTON-SEED PRODUCTS AND FERTILIZERS.

Cotton-seed cake and meal are used in this country in small quantities for the feeding of cattle, being manufactured here for home consumption. Cotton seed is exported from Greece to Malta and Europe. In January of this year 560,000 pounds were shipped to Italy, at 0.83 cent a pound f. o. b. Piræus.

There are in Greece three cotton-producing provinces: Livadia, Gythion, and Almyros, the annual production of which is about as follows: Livadia, 8,400,000 pounds of cotton and 14,000,000 pounds of cotton seed; Gythion, 560,000 pounds of cotton and 1,400,000 pounds of cotton seed; Almyros, 560,000 pounds of cotton and 1,400,000 pounds of cotton seed.

Attempts have been made here to produce cotton-seed oil, but they have failed thus far for want of proper machinery, and because the seed itself is not rich in oil.

COMMERCIAL FERTILIZER.

Commercial fertilizer is imported here in small quantities. During the year 1904, 173,210 pounds were brought in from France, England, Austria, and Belgium, valued in all at 12,284 francs. In 1905 about 500 tons were imported. Statistics for 1906 are unobtainable. In general, there is a prejudice among the peasants of Greece against commercial fertilizer, who fear that it will harm their lands. Natural fertilizer sells for 1.50 francs per 100 okes, equal to about 283 pounds. This material is used mostly by the more intelligent and progressive currant growers.

It is probable that commercial fertilizer will be manufactured here soon by the Wine and Spirit Company from the currant surplus. The residue, after the tartar has been extracted, is being stored away, with this end in view. Some educational work will need to be done among the peasantry, but the company hopes that this will be easy, as there seems to be less prejudice against a currant product than against fertilizers whose ingredients are unknown.

SERVIA.

BELGRADE.

MARKET YET TO BE OPENED.

Consul M. K. Moorhead, of Belgrade, reports under date of March 26:

Cotton-seed oil and cotton-seed cakes or meal are not used in Servia and cotton-seed linters are unknown. The chief oils and greases used which would come in competition with cotton-seed oil

are olive oil, sesame-seed oil, lard, and butter, the aggregate annual quantity and value of which are as follows:

ANNUAL CONSUMPTION OF OILS AND FATS IN SERVIA.

Oil or fat.	Quantity.	Value.
	Pounds.	*Dollars.*
Olive	2,867,473	138,441
Sesame-seed	4,741	265
Cocoa, palm, etc	1,662,813	48,963
Lard	6,600,000	1,200,000
Butter	88,000	132,400

Lard made from pigs' fat is used in great quantities for cooking. The average price in Belgrade is 2 dinars (38.6 cents) per kilo (2.2 pounds). The peasants use lard on their bread in place of butter, which is not used much either for cooking or eating. Butter costs about 3.31 dinars (63.8 cents) per kilo. Cotton-seed cake or meal have never been used as a food for Servian live stock. Maize (corn), barley, oats, and hay are the foods generally used, the annual aggregate quantity and value of which are:

ANNUAL CONSUMPTION OF FEEDSTUFFS IN SERVIA.

Feedstuff.	Quantity.	Value.
		Dollars.
Corn ..... bushels..	22,282,413	19,762,145
Barley ..... do....	4,848,878	2,533,125
Oats ..... do....	4,642,531	1,477,136
Hay ..... tons..	539,984	5,346,108

Commercial fertilizers are not used in Servia, the farmers employing simply animal manure.

RATES OF DUTY.

No effort has ever been made to import cotton-seed products into this country, although Servia produces no edible oils, olive and other oils being imported. There is no discrimination against cotton-seed products other than a very high import duty. The tariff on cotton-seed oil is 100 dinars ($19.30) per 100 kilos (220 pounds), while that on olive oil, by a special convention with France, is only 18 dinars ($3.47) per 100 kilos. Under this same convention sesame-seed oil, beech-nut oil, and oil of poppies pay 20 dinars ($3.86) per 100 kilos. Oil from palms, 5 dinars ($0.965) per 100 kilos. Of course it is impossible for cotton-seed oil to compete with olive oil so long as this high tariff—nearly six times that imposed upon olive oil—is in force. The only way to have this duty reduced is by a special convention with Servia.

TURKEY.

CONSTANTINOPLE.

IMPORTS RESTRICTED—USE OF VARIOUS KINDS OF BUTTER.

Under date of April 23 Vice-Consul-General William Smith-Lyte, of Constantinople, furnishes the following report:

The imports of cotton-seed oil is restricted to small shipments to be used for the purposes of soap manufacture, which are adulterated at the custom-houses with coloring matter to prevent their use for edible purposes. Statistics for the year ending March, 1901, the latest published, give the total imports of cotton-seed oil as $4,497. Of this a very insignificant part was from Austria and the remainder from the United States. The sales of this article, owing to legal restrictions, are so small that it is not quoted in the market reports. Hitherto only low-grade oil has been imported. Cotton figures as an article of export from Turkey to the extent of $2,000,000, and also cotton seed for $86,000 during the year 1904. No seed is pressed in the Empire.

Cotton-seed linters are not used.

Cotton-seed oil comes into competition in this country particularly with olive oil, which is very largely an article of local product, with sesame-seed oil, cocoanut oil, and to a less extent with edible tallows, oleo oil, and with native butters.

Olives are grown in Turkey in the Smyrna district (Aidin Vilayet) and the adjacent islands, Mitylene, Chios, the Aleppo Vilayet, and Moudania and Broussa, in the Hudavendighiar Vilayet. In the entire absence of available statistics I can only state that the oil produced is consumed locally to a great extent, the better qualities for edible purposes, 25 per cent, possibly, in the manufacture of Turkish soap, and the remainder is exported. The amount exported during 1904 amounted to nearly $1,000,000, a little more than one-half of which went to England and about one-tenth to the United States. As the exports vary little, whether the crop be large or small, it is evident that either the quantity exported or that used locally, or both, are adulterated generally with sesame-seed oil when the crop is short.

French official statistics place exports from France to Turkey of olive oil and other fixed oils (nonessential) at $484,816 in value, in which figures are included cocoanut oil 387,300 pounds, sesame oil 7,091,500 pounds, Colza oil 98,760 pounds, the custom-house valuation of these three items being placed at $397,831. Olive oil is quoted on this market at 8½ to 9 cents per pound, according to quality.

IMPORTATION OF MARGARINE.

Margarine is imported from Marseille, France, and reaches about 500 barrels of 200 kilos each (440 pounds). The price varies from 92 to 95 francs per 100 kilos f. o. b. Marseille (8 to 8½ cents per pound). This article is admitted by the French authorities not to be pure, but a small quantity of sesame-seed oil is added at the request of the importers to soften it, as in its natural state it is too solid. A higher grade of margarine is also imported from France, to the extent of 20,000 kilos (44,000 pounds), which is used for local adulteration of fresh butters. A small quantity of a superior quality is also imported in tins and sold locally under the name of Swiss butter, cooking butter, or Holland butter, at 21 or 22 cents per pound.

Oleo oil is imported directly from New York and via Rotterdam. The annual imports are estimated at about 17,000 tierces, of which 4,000 are drawn from stocks in Rotterdam. The present market quotation is 9½ to 11 cents per pound, according to quality.

A VARIETY OF BUTTER.

Owing to Russian internal troubles the import of Siberian butter has almost ceased. The imports amount to barely 70,000 pounds, although the local sales have not diminished, consisting of a local preparation of oleo oil mixed with other greases, possibly a small quantity of milk, and perfumed to give the tallow-candle flavor insisted upon by the native buyer. From Trieste is im-

ported a granulated margarine which has all the appearances and taste of Siberian butter. The quotation on the market is 26 cents per pound.

So-called Australian butter is a compact suet imported from England in barrels containing about 880 pounds each. Total imports about 200 barrels. Market price, 9½ to 10 cents per pound.

About 150 ox hides, containing 1,100 pounds each of Bulgarian suet, are imported. Market price, about 10 cents per pound.

Between 300 and 400 barrels of mutton suet are imported from England to be used in adulterating local tallows and fats. Price, 34 to 35 shillings per hundredweight.

Couyrouk is the fat contained in the enormous caudal appendage of the Caraman sheep, certain tails containing as much as 34 pounds of fat. It is impossible to estimate correctly the amount of this fat used. It is supposed to reach 2,000,000 pounds. A caudal fat is also imported from Russia and is known as "Couyrouk Samara." The market price is 13 cents per pound.

With a base of oleo oil, margarine, the various fats herein described, and the small amount of local suet, together with the addition of yellow and white sesame oils, and sometimes a small quantity of milk and pure butter, a whole series of products commonly known as butter are sold in this market.

During the winter months a small quantity of lard is imported from America via London in tubs weighing about 28 pounds each. Market price, $3 to $3.20 per tub.

Beurre de Coco, vegetaline, kunerol, under which names cocoanut oil is known, is imported to the exent of 110,000 pounds annually. The greater quantity comes from Marseille and is quoted at 83 to 84 francs per 100 kilos f. o. b. Marseille (7½ to 7¾ cents per pound).

Unadulterated fresh butters are imported from Hungary, Switzerland, and Italy to the extent of 24,000 pounds annually. This district receives also about 28,000 pounds of fresh butters from Asia Minor, principally by the Anatolian Railway. Adulterated fresh butters are imported also from the neighborhood, sold in small paper packets labeled "Hungarian Butter," containing 20 per cent of margarine or other substances, to the extent of 44,000 pounds. The same, containing 30 per cent of foreign matter sold in drums, 50,000 pounds.

From Sofia, Adrianople, and Roumelia Hungarian butter is received, containing 20 to 25 per cent of margarine, and sold in packets. The quantity received was 44,000 pounds. The same, containing 30 to 35 per cent of margarine, and sold in boxes of 28 and 56 pounds, was imported to the extent of 55,000 pounds. The total imports of fresh butter amount to about 245,000 pounds.

Sales of Brittany butter, Normandy butter, Cork butter, and Danish butter are small, not exceeding 26,000 pounds.

Bulgaria supplies this market with a white butter, almost liquid, called "mantega" in Bulgarian. It is sour in taste and costs 5 to 8 cents a pound. It is used in adulterating so-called butters sold on this market. Total imports, 60,000 to 70,000 pounds.

Cotton-seed cake or meal is not used as cattle food nor as a fertilizer, and is not imported to this market.

DISCRIMINATION AGAINST COTTON OIL.

The law operates to the disadvantage of American cotton-seed products. With a change in the law the extent of the importation of cotton-seed oil, as in the case of sesame-seed oil, will depend somewhat upon the result of the year's olive-oil crop. The nineteenth article of the law on sanitary examination by the customs, of June 3, 1905, reads as follows:

"The entry will not be permitted of oils arriving at the custom-houses which, during their examination, are found unfit for food, in consequence of containing substances harmful to health, or being fetid (rancid) and deteriorated. Cotton oil imported for use in industry will be allowed entry after coloration. Greases and various vegetable oils to be used in industry on condition that they are unadulterated and are in conformity with their respective names, their entry will be permitted without coloration. Those which in their actual state are not permitted entry, if their owner desires, after coloration in accordance with science, their entry will be permitted."

HONGKONG.

LITTLE DEMAND FOR COT N-SEED PRODUCTS.

ABUNDANCE OF PEANUT OIL.

Consul-General Amos P. Wilder, of Hongkong, reports, under date of January 25, that groundnut (peanut) oil is so cheap and abundant that cotton-seed oil can hope to do but little if anything. The consul further reports:

The Chinese produce great quantities of peanut oil and it finds many uses. The present quotations (January 25) on peanut oil at Hongkong are: Best, $20 per picul (133⅓ pounds); good, $18.50 per picul; medium, $17 per picul. These prices are in Hongkong currency. One dollar Hongkong currency is worth about 55 cents gold. Fook Cheong is the leading dealer in this oil. Tong Hang Yue, Yung Tai Loong, and Kue Yuen are other dealers.

Peanut oil is packed in tins, 4 tins to a case, the case measuring 2 cubic feet 8 inches. Each tin contains 22½ pounds of oil, about 10 gallons per case. Hongkong ships peanut oil to Australia and to some extent to San Francisco. For local choice table uses, this being a British colony, Crosse & Blackwell's and Moreton's oils occupy almost the entire field. One dealer tells me that California olive oil was imported, but, though it was equally as good and much lower in price, families insisted on the British brand. Some cotton-seed oil is imported from the United States by the Chinese in the form of lard compound. In this free-trade port it is difficult to know the extent of this business.

Cotton-seed cakes for cattle feeding would meet the competition of Chinese methods. The bean cake (made of the bean after the oil is extracted) is much in use for this purpose. A principal article of trade from Newchwang and Chefoo, especially to Swatow, is bean cake, used largely as a fertilizer.

Fats from America are of course high. Dealers tell me that compound lard from Chicago, which they once bought laid down in Hongkong for 5¾ cents gold, is now over 11 cents gold.

EXPORTS OF COTTON-SEED PRODUCTS.

FOREIGN CONSUMERS OF AMERICAN SEED, OIL, AND CAKE.

The following table shows the value of cotton-seed products exported in each of the four fiscal years ending June 30, 1903–1906. The value of the exports for the fiscal year 1897 is added that the growth of the trade in the last decade may be measured and compared. Cotton linters are not included. For the fiscal year 1905 the exports of linters were valued at $1,433,925, of which $866,105 went to Germany, $258,180 to Belgium, $131,922 to the Netherlands,

$72,000 to France, $39,252 to the United Kingdom, and $24,867 to Italy. Linters are no longer given separate classification in "Commerce and Navigation of the United States," being included with "upland and other" cotton.

EXPORTS OF COTTON-SEED PRODUCTS TO THE PRINCIPAL COUNTRIES, 1897 AND 1903–1906.

Whither exported.	1897.	1903.	1904.	1905.	1906.
Cotton-seed oil:	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*	*Dollars.*
Netherlands	1,470,100	3,772,500	2,108,400	4,089,600	3,367,400
France	2,601,500	2,594,000	2,115,400	2,671,900	2,412,200
Austria-Hungary	619,700	1,460,800	966,500	1,360,500	1,631,300
Germany	430,500	1,293,400	1,062,700	1,473,400	1,518,900
Mexico	320,500	1,068,300	1,177,000	692,800	822,200
United Kingdom	294,600	814,900	804,100	908,900	795,200
West Indies	209,500	432,300	408,400	378,200	564,200
Italy	209,700	811,400	547,100	1,669,300	553,600
Belgium	121,400	141,400	251,400	496,900	402,500
Canada	62,200	359,600	216,900	233,700	342,400
Brazil	173,800	329,700	348,800	191,000	229,700
Denmark	22,000	313,800	251,400	103,900	143,700
Sweden	18,200	93,900	59,700	87,700	137,700
Uruguay	51,900	110,100	96,900	81,700	112,200
Norway	(a)	69,600	90,700	52,200	83,600
French Africa	119,800	125,900	36,800	165,000	78,500
Argentina	11,600	18,600	69,600	40,000	49,800
Egypt	19,000	76,600	10,200	76,100	42,700
All other countries	141,400	324,400	95,300	348,000	285,600
Total	6,897,400	14,211,200	10,717,300	15,125,800	13,673,400
Oil cake:					
Denmark	482,800	4,062,700	2,422,700	4,514,300	5,078,700
Germany	2,657,800	4,034,700	3,803,500	5,436,800	4,478,300
United Kingdom	1,414,200	2,381,100	1,894,700	2,375,800	1,681,100
Netherlands	600,000	1,546,300	685,400	918,300	890,300
Belgium	241,600	583,800	192,900	361,300	659,600
All other countries	119,400	123,900	134,900	290,700	285,100
Total	5,515,800	12,732,500	9,134,100	13,897,200	13,073,100
Cottolene, etc.:					
United Kingdom	232,100	1,141,300	765,100	669,100	1,047,300
Cuba	10,700	1,060,500	1,351,100	1,234,700	837,000
Netherlands	11,100	174,200	293,000	241,200	446,200
Mexico	19,800	100,000	162,900	217,300	439,700
Germany	226,500	321,000	477,800	536,400	232,300
Belgium	39,100	114,700	40,400	79,400	202,000
Denmark	50,100	127,300	63,100	78,300	159,400
British India	.....	44,400	58,300	240,300	36,300
All other countries	268,300	524,100	370,100	316,500	754,000
Total	857,700	3,607,500	3,581,800	3,613,200	4,154,200
Cotton seed:					
Mexico	8,600	46,900	21,200	60,900	71,300
Netherlands	700	400	.....	37,600	67,600
United Kingdom	159,700	406,800	90,400	58,900	56,400
Germany	.....	73,400	23,000	74,900	42,300
Belgium	.....	3,400	1,500	.....	17,500
France	1,200	.....	300	400	10,000
British South Africa	.....	.....	200	700	1,100
All other countries	400	1,800	4,600	2,400	2,100
Total	170,600	532,700	141,200	235,800	268,300
RECAPITULATION.					
Cotton-seed oil	6,897,400	14,211,200	10,717,300	15,125,800	13,673,400
Oil cake	5,515,800	12,732,500	9,134,100	13,897,200	13,073,100
Cottolene, etc	857,700	3,607,500	3,581,800	3,613,200	4,154,200
Cotton seed	170,600	532,700	141,200	235,800	268,300
Total	13,441,500	31,083,900	23,574,400	32,872,000	31,169,000

(a) Included with Sweden.

CUSTOMS DU

RATES IN FOREIGN COUNTRIES ON COTTON-SEED PRODUCTS.

B ates of duty imposed by for-
01 d products from the United

TARIFF RATES ON IMPORTS OF COTTON-SEED PRODUCTS.

Country.	Unit of quantity.	Rate of duty.	
		Foreign unit.	U. S. equivalent.
Austria-Hungary:		(*Krone*=$0.203.)	*Dollars.*
Cotton-seed oil, in casks, leather bags, and bladders.	100 kilos	40 kronen	8.12
For industrial purposes	do	12 kronen	2.436
In bottles, jars, and similar receptacles, weighing less than 25 kilos.	do	48 kronen	9.744
Oil cake		Free	Free.
Belgium:			
Cotton-seed oil, cake, and meal		Free	Free.
France:		(*Franc*=$0.193.)	
Cotton-seed oil	100 kilos, net	7.20 francs	1.39
Oil cake		Free	Free.
Germany:		(*Mark*=$0.238.)	
Cotton-seed oil	100 kilos	12.50 marks	2.975
Oil cake		Free	Free.
Greece:		(*Drachma*=$0.193.)	
Cotton-seed oil, in bottles or other vessels, except barrels, skins, and the like.	100 okes (282.185 lbs.)	100 drachmas	19.30
In other receptacles	do	30 drachmas	5.79
Italy:		(*Lira*=$0.193.)	
Cotton-seed oil	100 kilos	[a] 35.50 lire	6.8515
Oil cake		Free	Free.
Netherlands:		(*Florin*=$0.402.)	
Cotton-seed oil	100 kilos	.55 florin	.2211
Oil cake and meal		Free	Free.
Norway:		(*Krone*=$0.268.)	
Cotton-seed oil	100 kilos	.06 kroner	.01608
Russia:		(*Ruble*=$0.515.)	
Cotton-seed oil	Pood (36.113 lbs.)	3.30 rubles	1.6995
Servia:		(*Dinar*=$0.193.)	
Cotton-seed oil [b]	100 kilos	100 dinars	19.30
Spain:		(*Peseta*=$0.193.)	
Cotton-seed oil [c]	do	27 pesetas	5.211
Oil cake	do	1 peseta	.193
Sweden:		(*Krona*=$0.268.)	
Cotton-seed oil, in casks		Free	Free.
In other receptacles	Kilo	.05 krona	.0134
Oil cake		Free	Free.
Switzerland:		(*Franc*=$0.193.)	
Cotton-seed oil, in receptacles of all kinds, weighing more than 10 kilos.	100 kilos	1 franc	.193
In receptacles of all kinds, weighing 10 kilos or less.	do	20 francs	3.86
Crude, for technical purposes	do	.50 franc	.0965
Oil cake and meal		Free	Free.

[a] Including the manufacturing surtax of 14 lire per 100 kilos.

[b] Edible oils, denatured for technical purposes, are subject to a duty of 5 dinars per 100 kilos; edible oils, imported in bottles, cans, or other receptacles weighing less than 25 kilos, are subject to a surtax of 20 dinars per 100 kilos.

[c] Cotton-seed oil is admitted only when denatured by the customs authorities, the cost of the denaturing materials to be borne by the importer.

APPENDIX

COMPILED IN CONFORMITY WITH SENATE RESOLUTION OF FEBRUARY 24, 1908

APPENDIX.

ENGLAND.

HULL.

IMPORTATIONS FROM VARIOUS COUNTRIES—EXTENT OF TRADE.

Consul Walter C. Hamm has secured the following facts of interest concerning the handling of cotton seed at Hull, the British center of this trade and industry, both as to importations and crushing, which he transmits under date of November 22, 1907:

No South American cotton seed, sound or unsound, so far as diligent inquiry can discover, has been imported direct into Hull. It is probable that some may reach here eventually, as South America sends some cotton seed to the United Kingdom; but, if so, it arrives at other ports, is transshipped to Hull by rail, and is not classed here as South American seed. South American cotton seed is also exported to the Continent, and possibly some of it is transshipped to Hull via Hamburg, as a moderate quantity of seed arrives here annually from that port. The quantity of seed exported from the different countries of South America to the United Kingdom in 1905 and 1906, with the value, was as follows:

Country.	1905.		1906.	
	Tons.	Value.	Tons.	Value.
Brazil	35,092	$807,890	28,116	$740,750
Peru	3,013	81,245	3,334	99,885
Chile	622	16,735	1,328	41,790
Colombia	129	3,535	193	6,810
Total	38,856	909,405	32,971	889,235

Hull is by far the largest importing center of cotton seed in the United Kingdom, nearly one-half arriving at this port. It is here that the seed-crushing industry was first started in this country, and this city still holds its place as the largest seed-importing and seed-crushing center in Great Britain. The seed-crushing firms have modernized their plants and developed the business to a great extent during the last twelve years.

The imports of cotton seed into Hull during 1906 were 291,142 tons, or larger than in any year since 1903, when the total reached 299,189 tons. Bombay seed was more in evidence than in 1905, and prices ruled fairly high for this class of seed, varying from $30 per ton to $38 toward the end of the year. Egyptian and Turkish seed varied considerably. When the Indian cotton crop is a good one, as it is reported to be this year, enlarged supplies are looked for from that direction, more especially as cake made from India seed is popular among a certain class of farmers on account of the price, which is less than that made from Egyptian seed.

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AMOUNT IMPORTED BY ENGLAND /

The imports of cotton seed into England and Scotland during 1905 and 1906, with the value, classified according to the countries from which they came, are given in the following table:

Country.	1905.		1906.	
	Tons.	Value.	Tons.	Value.
Egypt	385,615	$10,574,000	362,592	$11,666,885
India	123,342	2,862,860	202,790	5,322,175
South America	38,856	909,405	32,971	889,235
Turkey	9,198	199,690	14,084	357,630
United States	4,132	101,895	3,007	80,315
Africa	553	12,545	2,381	57,860
Total	561,696	14,660,395	617,825	18,373,600

Of last year's total imports Hull's share in value was $8,863,210; London's, $2,970,070; Liverpool's, $2,254,935; Bristol's, $1,841,890; while those of Leith, Scotland, amounted to $746,965.

The imports of Hull for the ten months ending October 31, 1907, were 309,901 tons, 158,430 of which was Egyptian, against 245,813 tons, of which 136,291 was Egyptian for the same period in 1906. During the same ten months of 1907 the total imports of cotton seed into the United Kingdom were about 600,000 tons.

Egyptian cotton seed arrives from September to April from Port Alexandria. Indian cotton seed arrives here in moderate quantities all the year round, but the bulk comes from May to October, the shipping ports being Bombay and Karachi. Turkish seed arrives occasionally only in very small quantities from Port Mersina and Smyrna.

Cotton seed is exported from the United States to the United Kingdom, but only in small quantities. The imports of American cotton seed into Great Britain during 1906 totaled 3,007 tons, valued at $80,315, against 4,132 tons, valued at $101,895, in 1905. Seed importing firms in Hull would willingly do business with American seed exporting firms if prices and other conditions are satisfactory, and they invite correspondence to that end. [A list of the seed importing firms in Hull is placed on record at the Bureau of Manufactures.]

SHIPPING DETAILS.

The largest seed importing firm in Hull imported cotton seed from New Orleans a few years ago, but during the last four or five years they have not made any imports from the United States. The reasons they give are that the seed has not been up to the standard, with the exception of last year, which was an exceptional year, and that they only dealt with one firm, and had considerable difficulty in settling accounts. The claim they make is that more seed was charged for than actually arrived, and no satisfactory arrangements could be made without going to law, the latter course involving too much time and expense. The following statement from this firm *should* be interesting to American cotton-seed growers and exporters:

American delinted cotton seed is an article in which a large business could *done* in Hull, provided that in price it could compete with Egyptian cotton

seed. The seed compares favorably with the Egyptian in normal years. The essential points in seed are that it should be well delinted, guaranteed not to contain more than 7½ per cent brown or damaged, and that great care be taken in shipping that the seed be not stowed near corn or anything that is likely to cause heat or sweat. Some American shippers have wished to sell on the basis of fair average quality of the season, which, however, is quite impracticable, as there are no reliable means of ascertaining what this is, and the shipments are so irregular that there is no means of making a reliable standard.

Egyptian seed is sold on the basis of fair average quality of the season's shipments at time and place of shipment, and as there are shipments from Alexandria nearly every week, monthly standards are made up, which work satisfactorily. Business in American delinted cotton seed is also somewhat handicapped by the fact that the business is done here in cakes and oil on the basis of pure Egyptian or pure Bombay, consequently the products of American delinted seed have to be sold as a special article, which interferes with the free manipulation on a market, and also is not everybody's seed. Should the trade grow and become a considerable factor on our market, many of these drawbacks would no doubt vanish.

Prices for seed during 1907 fluctuated greatly. During November the price ranged between $28 and $35 per ton.

SOUTHAMPTON.

AMERICAN COTTON-SEED CAKE PREFERRED BY DAIRYMEN.

Consul Albert W. Swalm, of Southampton, makes the following report, under date of June 7, 1907, on the use of cotton-seed products in the south of England:

Cotton-seed cake is largely used at all the dairy places in the south of England, but none enter the port of Southampton. Inquiries covering nearly 100 large dairymen has disclosed the fact that the seed cake is bought by dealers from either London or northern ports, where ships arrive from American cotton ports. The prices paid for the past three years have averaged $2 per 100 pounds. The reports nearly all favor the American product as being the freest from all foreign matter and giving best results. One long-established dairyman believed that the American product was worth 25 per cent more to him than any other similar product on the market.

The sum total of American imports can only be named in due course. Cotton-seed oil does not appear as a factor in this section, manufacturers not being prevalent in the south of England. Cotton-seed cake or meal is used only as a foodstuff and meets the eastern product in competition, but the American product commands steadily the better price in the trade I have named and for the reasons given.

Cotton-seed oil has free entry into English ports, and meets with no governmental restraint. It can not be used as an adulterant of olive oil, as the latter must be labeled in bottles and tins as pure olive oil. Those oils sold as "salad oil," or other name, may be adulterated with cotton-seed oil. From the number of such appearing in the retail markets a considerable quantity of the oil must be annually used.

The use of cotton-seed oil in a domestic way is warmly advocated by the vegetarian class as healthier than lard or tallow mixtures, and that the vegetarian sentiment is growing in a solid way is indicated by the decreased use of meats and all meat by-products.

FRANCE.

MARSEILLE.

COTTON-SEED OIL AND COMPETING PRODUCTS AT MARSEILLE.

Vice-Consul-General Paul H. Cram, writing from Marseille, December 20, 1907, in response to interrogatories from the United States in regard to low prices of cotton-seed oil, reports that dealers there agree in attributing the situation in December last to the action of American sellers in disposing of their stocks, such action resulting directly from the financial situation in the United States. Mr. Cram continues:

One of the best-informed merchants in the city advises me as follows respecting the present situation of the oil and oil-seed market at this point:

The present values of edible qualities of American cotton-seed oils (prime summer yellow, winter yellow, and other finer edible qualities) are undoubtedly very low as compared with other edible seed oils. There is every reason to believe that the substantial decline of the last three months must be attributed to forced sales of available stocks, owing to the financial crisis and stringency of money. Otherwise, the general statistical position of edible oils and their respective raw products in Europe is distinctly strong. This is particularly the position of our market here, which is the largest importer of oil seeds and kernels suitable for edible oil manufacture (chiefly sesame seed and groundnuts or peanuts).

Sesame seed, also called gingelly seed.—Reports from India are very unfavorable as regards these new crops. Owing to failure of rains at the sowing season, there is every reason to anticipate a serious falling off compared with the yield of previous years. Thus far the sales made to this market reach barely one-third of the total of previous years. Consequently very high prices prevail, Bombay white sesame seed fetching 47 francs ($9.07) per 100 kilos (220 pounds), against 36.50 francs ($7.04) per 220 pounds at this date last year, while oil from this seed is worth 95 to 100 francs ($18.33 to $19.30) per 100 kilos, against 80 francs ($15.44) at the same period last year. At that time American oil was selling: Prime summer yellow at 70 francs ($13.51) and winter yellow at 80 francs ($15.44) per 100 kilos c. i. f., while these qualities are now fetching only 62 and 72 francs ($11.96 and $13.89), respectively. These prices are chiefly accepted by resellers, while America is asking 65 francs ($12.54) and 72 francs ($13.89) to 73 francs ($14.08).

Groundnuts or peanuts.—Crop reports from the West Coast of Africa (Senegal and Gambia) generally show a deficit of about one-fifth compared with last year's yield. Supplies from this source therefore are likely to fall short of requirements.

For later months there is thus reason to anticipate larger requirements and higher values for American oils, to make up the shortage in sesame and groundnut oils. With this expectation, considerable quantities have been bought here for October to January shipment from America, estimated at approximately 50,000 barrels of prime summer yellow, winter, and off grades. For the later months, however, only moderate quantities have thus far been sold.

ROUBAIX.

USE OF COTTON-SEED OIL—ACTIVE COMPETITION.

From Consul Chapman Coleman, of Roubaix, the following report was received, dated April 17, 1907:

Cotton-seed oil and cotton-seed cake or meal are used in this district to some extent; in what quantities is not ascertainable, there

being no available statistics bearing on the subject. The oil is used chiefly in the manufacture of artificial butter (margarine) and of food oils and greases. About 350 metric tons are imported annually into this district, chiefly through the port of Dunkirk. Much of this quantity finds its way, however, into parts of France situated without this district. The price of the oil is from 83 to 88 francs per 100 kilos. The price of the oil-seed cake, which is used as feed for cattle, is about 12 francs per 100 kilos (1 franc=19.3 cents; 1 kilo=2.2 pounds).

Cotton-seed linters are used in this district to the extent annually of from 6,000 to 8,000 bales. There are several qualities of the article, selling at from 28 to 38 francs per 100 kilos. These linters, mixed sometimes with other cotton of longer fiber, are spun into coarse yarns, which are employed for upholstery and tapestry weaving or made into a coarse article of cotton cloth, and are also used for linings.

COMPETING PRODUCTS.

Cotton-seed oil comes into competition chiefly with the following oils and greases: Olive, groundnut, gingelly seed, poppy seed, copra butter, tallow, butter, lard, and other edible oils and greases. The prices of these articles are as follows: Olive oil, 125 to 145 francs per 100 kilos; groundnut oil, 90 to 92 francs; gingelly-seed oil, 80 to 95 francs; poppy-seed oil, 92 to 95 francs; tallow, 90 to 95 francs; lard, 132 to 140 francs; and butter, 250 to 350 francs.

Cotton-seed cake or meal come in competition with linseed, rape, groundnut, gingelly-seed, and poppy-seed cake. The prices for these articles are: Linseed cake, 13 francs per 100 kilos; rape-seed cake, 15 francs; groundnut cake, 18 francs; poppy-seed cake, 18 francs, and gingelly-seed cake, 14 francs.

There has been some decrease in the quantity of the cotton-seed products hereinbefore named, and particularly in cotton-seed oil, in consequence, it is said, of the high price of that oil in recent years.

In this region the production of edible oils exceeds the demand, and there is some disinclination to use cotton-seed oil, it being alleged that it becomes turbid and coagulates when the temperature falls. After removal of its color by a process of clarification it is used to some extent in combination with other edible oils.

CALAIS.

COTTON-SEED CAKE PREFERRED TO MEAL.

Consul James B. Milner, writing June 12, 1907, from Calais, furnishes the following report:

Cotton-seed cake is used to an important extent in this consular district, but cotton-seed meal is not employed, as farmers are dubious of its purity, therefore they prefer crushing the cakes themselves. A syndicate of three hundred farmers, having its principal office in Calais, consumed last year 80 tons of cotton-seed cakes.

Bolted and semibolted cotton-seed cakes are much employed for feeding all kind of cattle, especially in the summer time, when the cattle are on grass. It is also used in winter, when the cattle are in the

stables, as a corrective of the use of linseed cake. Unbolted cotton-seed cake is only used as a fertilizer. It would be much in use but for the price, which is too high to compete with other fertilizers.

IMPORTATIONS AND PRICES.

Cakes are imported through Dunkirk, where they are retailed on board cars for quantities of about 5 tons: Semibolted, $2.60 per 100 kilos (220 pounds); bolted, $3.42 per 100 kilos. These prices are considered high, as all cakes are expensive at present (June 12).

Articles coming in competition with cotton-seed cakes as foodstuffs are: French linseed cakes, $3.57 per 100 kilos on board cars at Dunkirk; Russian linseed cakes, $3.40, same conditions.

Cotton-seed cakes could be used as fertilizers on account of the azote contained in them, but for this use they would have to compete with ravison, colza, and ricin, which latter can be had cheaper than cotton-seed cake, when the per cent of azote is taken into account.

Ravison, colza, and ricin meals contain the percentage of azote hereinafter given and can be had at the following prices on board cars at Dunkirk per 100 kilos or 220 pounds, viz: Ravison meal, 4 to 5 per cent azote, $2.27; colza meal, 4.75 per cent azote, $2.41; yellow colza meal, 5 to 6 per cent azote, $2.70; ricin meal, 4 to 5 per cent azote, $1.91.

As no import of cotton-seed products is made through Calais or Boulogne-sur-Mer, the two principal seaports in this consular district, no statistics are obtainable as to the quantities used.

The consumption of cotton-seed cakes has been increasing in the last few years. Price is the only impediment to a still more important commerce.

[The name of an importer of cotton-seed cakes in Dunkirk, who supplies the syndicate of farmers referred to in this report, is on file in the Bureau of Manufactures.]

NETHERLANDS.

GENERAL MARKET CONDITIONS.

LOCAL CONSUMPTION AND PRICES—SALES OF AMERICAN PRODUCTS MAY BE GREATLY EXTENDED.

Special Agent J. L. Benton, while investigating conditions in foreign markets with regard to cotton-seed products, furnished the following report, written from Rotterdam, May 15, 1907:

The Netherlands is the best individual customer among the family of nations for American cotton-seed oil, buying, in 1906, 12,976,717 gallons, of the value of $4,236,638, being an increase over 1905 of 1,390,870 gallons. The purchase by the Netherlands is greater than that by France and Germany combined. The gradual increase in the sale of cotton oil to the Netherlands is due almost entirely to the margarine manufacturer. He is very friendly to the American product, because with its use he secures the very best results. It is estimated that at least 85 per cent of the cotton oil received from the

United States enters into the manufacture of margarine. This industry is one of vast importance in the Netherlands and is now in a more prosperous condition than ever before.

Practically no cotton oil from the United States is used directly as a cooking fat. Rape-seed oil and a low-grade English cotton oil are the principal cooking oils, though margarine and a compound lard manufactured in Holland are the most extensively used for cooking purposes. A leading broker in oils told me that there was a great future in this country for American cotton oil as a direct cooking fat. A small quantity of American cotton oil is taken by the compound lard manufacturer in this country, though this is not an industry of great importance. Small quantities go direct to the soap manufacturer.

COTTON-MEAL TRADE.

The trade of the United States with the Netherlands in cotton meal is so small that the figures look ridiculous. Less than 30,000 tons were received during 1906, and the trade here conservatively estimates that not over 20 per cent of that was consumed in this country, the bulk going to the German trade on the Rhine. The Netherlands imported in 1906 237,000 tons of linseed meal, 29,000 tons peanut meal, and only 28,000 tons of American cotton meal. I have been unable to find any explanation of that situation, and am forced to the conclusion that the manufacturer in the United States has not given the meal trade in the Netherlands the attention it should have. There is in this country, especially in the northern section, a vast dairy business, and in all sections much time is devoted to cattle raising. The grass season is about the same as in the southern part of the United States, from April 1 to December, and during the remaining part of the year commercial feedstuffs are used. There is evidently an excellent opportunity to place cotton meal with the Holland feeder.

The trade of the United States with the Netherlands shows up well and has gradually increased during the past ten years. The exports for 1906 show an increase of 30 per cent over 1905. American cotton meal, which is practically unknown in this country, has contributed nothing toward the increasing trade. The idea is prevalent that the Dutch experiment stations have found something wrong with cotton meal. I had a conference with the director of the laboratory at Goes, who informed me that they have never been able to find anything wrong, and now felt quite sure that they would not. For fifty years the Dutch feeder and farmer have been feeding cake, and it will be far easier for the American manufacturer to furnish the cake than it will be to educate these people to a different method of feeding. They think that the cake is ground in order to use some adulterant.

LINSEED AND RAPE SEED.

In the Netherlands only two oil-bearing seeds are cultivated—linseed and rape seed. Both have been cultivated for many years, but as yet the cultivation of neither has assumed any serious proportion. Regardless of the fact that scattered through the Netherlands are many linseed mills that naturally encourage the cultivation of linseed, the acreage has varied but little during the past fifty years. The best seeds produced never reach the mills, but are bought up by

brokers and exported to Ireland. The farmer here prefers to import the Russian linseed for planting purposes. The following table shows the acreage of linseed and rape seed in the Netherlands:

Years.	Linseed.	Rape seed.
	Acres.	*Acres.*
1905	36,534	5,837
1904	39,570	5,563
1903	36,367	8,050
1890	36,537	18,910
1850	37,475	70,900

In 1905 the 36,534 acres of linseed in cultivation produced 153,836 hectoliters (24,414,432 pounds) of seed, and the average production per acre has not varied 2 per cent during the past twenty years. The average price paid for linseed during the past three years is as follows: 1906, 260 guldens (gulden or florin=40 cents American) per 100 kilos (kilo=2⅕ pounds); 1905, 237 guldens per 100 kilos; 1904, 207 guldens per 100 kilos. The imports of linseed and rape seed were as follows (1 hectoliter=2.838 bushels):

Year.	Linseed.	Rape seed.
	Hectoliters.	*Hectoliters.*
1906	3,373,000	1,573,000
1905	3,560,000	1,246,000
1904	4,014,000	615,000

In addition to the foregoing imports of oil-bearing seed peanuts and sesame seed are imported for manufacture. Only a small amount of sesame seeds reach the Netherlands, and no data as to the amount can be found. The seeds are crushed at Delft in connection with the peanut industry at that place. Imports of peanuts in 1904 were 107,987,000 pounds; 1905, 63,641,000 pounds, and 1906, 65,099,200 pounds. For 1906 the imports are entered as follows:

	Pounds.
West coast of Africa	34,918,400
East coast of Africa	578,000
Spain	1,258,400
All other countries	28,344,400

ACTIVE COMPETITORS OF COTTON SEED.

Linseed, peanuts, rape seed, and sesame seed are the four oil-bearing seeds manufactured in this country that compete with the products of the American cotton seed.

The oil cakes from the seed manufactured here are not sufficient. The imports of commercial oil cakes and meal are as follows:

Articles.	1906.	1905.
	Pounds.	*Pounds.*
Linseed cake and meal	475,472,800	408,207,800
Cotton cake and meal	63,793,400	75,282,000
Rape seed cake and meal	9,743,800	10,256,000
Peanut cake and meal	85,140	81,620

For the consumption of these feedstuffs the Netherlands have available domestic animals as follows: Dairy cows, 1,690,463; horses, 295,277; sheep, 606,785; goats, 165,497; hogs, 861,840.

For this number of domestic animals the Netherland statistics for 1904 showed available 2,982,015 acres of pasture lands, with the grass season about the same as in the southern part of the United States. They show for their total area 134 head of cows for every square mile, as compared with 18 head for the United States.

Linseed cake is practically the only feed that is a competitor of the American cotton cake. It is invariably sold to the feeder in the shape of cake and not meal. The Dutch farmer has inherited the idea that it is only ground for the purpose of adulteration. Of the small amount of cotton meal coming into this country 20 per cent is consumed in the Netherlands and the remainder goes to the German trade on the Rhine. This small amount of cotton meal goes into the province of Zeeland, where some little encouragement has been given the use of cotton meal.

FEEDING FORMULAS AND COST.

The feeding formulas of the largest feeder in Netherlands are here given. Not one of the four formulas contains a particle of cotton meal. This feeder, Mr. H. A. Hanken, directeur of Wilhelmina Polder, located at Goes, stated that it had been a long time since he had used any cotton meal, and that he had no prejudice against it, but cake was wanted and not meal. At this time he is testing the merits of a formula containing molasses. The formulas given me are as follows:

Formula 1:	Kilos.
Meat (meal)	1½
Corn meal	1
Linseed cake	1
Mangels	60
Formula 2:	
Corn meal	1
Linseed cake	2
Beans	1
Peanut cake	1
Mangels	40

For milch cows:	Kilos.
Mangels	20
Ensilage	12
Linseed cake	20
Hay	10
Beans	1½
For pigs:	
Meat meal	½
Pea meal	½
Barley meal	2
Corn meal	1

The cost of the different feed stuffs used, as given by Mr. Hanken, are as follows:

Mangels	per ton	$2.40
Meat meal	per 100 kilos	5.50
Corn meal	do	2.80
Hay	do	1.30
Linseed cake	do	3.40

GOOD PROSPECT FOR INCREASED USE.

The possibility for the extended use of cotton meal in the Netherlands is good. It has been suggested that the introduction of cotton meal as a feeding article would have to be undertaken by this Government. It would of course materially aid the introduction, but so long as the Government is friendly to cotton meal there should be no trouble in this direction. There is not to-day a commercial feed

stuff sold in the Netherlands that equals the American cotton meal, and while many illustrated pamphlets, etc., are found advertising the merits of the competitive feed stuffs I have not yet found one line in behalf of cotton meal. It should be remembered by the American shipper that, not being educated to the use of cotton meal, the Dutch feeder will only take the very best grades. He has been led to believe that the least particle of hull in the meal, in place of making the meal better for feeding purposes, is absolutely poisonous to his cattle.

In every province of the Netherlands one will find many clubs of farmers, called by them "bonds," but always referred to in the Government statistics as "societies." These societies usually have a membership from 10 to 50 persons, and their object is the purchase of supplies in large quantities, enabling them to secure the same at wholesale price. The usual method is to advertise in the newspaper and receive bids. In case the purchase is a feed stuff samples are drawn in presence of a representative of the society and the seller, which is sent to the experiment station for analysis, and on the decision rendered the article is accepted or rejected. The farmer receives the bulk of his supplies through these societies, and various statistics are compiled by the Government from data furnished by them. Under this method of purchasing a complaint is therefore not that of an individual, but of an entire community. This plan, which is practically universal in this country, is given in order that the American will understand the channels through which their products reach the consumer.

It has long been publicly advocated in the Netherlands that no meal containing more than 1 per cent lint and 5 per cent hulls should be used, but I think this trouble will, to some extent at least, be eliminated. A visit to one of the agricultural stations discloses the fact that cotton meal fed with mangels is as economical a feed as can be used in this country. Mangels are produced mostly in the southern part of the Netherlands, and by analysis show 2 per cent protein and no fat. It is in this section of the country that cotton meal is now being used, and indications point to quite an extensive use in that section.

DISTRIBUTION—LINSEED CAKES.

The bulk of the feed stuffs used in the Netherlands are carried to the interior by means of small boats. In most instances the boat is the home of the owner and his entire family. On the trip to the interior the owner carries a good assortment of the necessities of farm life. Many of these people dislike to carry cotton meal, and some even refuse to do so, stating that the meal is so finely ground that it scatters over everything in the boat. This can of course be overcome by the use of cake.

The linseed cake of this country is packed in wooden boxes of 50 cakes to the box. Each cake weighs 1 kilo and is about 5 inches wide and 15 inches long. The linseed mill uses the same press for extracting the oil as is now used in the United States, but after grinding the cake (usually mixing an imported linseed cake with it) it is *molded* into the small cakes and boxed ready for the market.

There is also another feed becoming quite popular, because the form in which it reaches the consumer is attractive. They call it "Lynzaadschilfers," schilfers in Holland meaning scales. It shows 80 per cent digestibility, and the dealers assume that it is only broken linseed cake. From the shape of this broken cake I think it is manufactured in what is commonly known in the United States as the screw press.

PEANUT CAKE—COTTON AND OTHER EDIBLE OILS.

The peanut cake reaches the feeder in the same size as the linseed. But little of this cake is imported. That manufactured by the one peanut mill in this country is of course readily consumed. This mill has a capacity of 100 tons of peanuts every twenty-four hours. It is operated the entire year. The average wages paid is 13 to 16 florins per week. The hull of the peanut is ground, and is supposed to be exported to Germany, where it is used as an adulterant for feed meals. The peanut from Africa is said to be the most productive in oil, and over one-half of the amount received in this country comes from the West Coast of Africa.

Below is given the price of the different feed meals on May 19 in the local currency (1 florin=40.2 cents):

	Protein and fat.	Florins per long ton.		Protein and fat.	Florins per long ton.
	Per cent.			*Per cent.*	
Cotton meal (bolted)	56	87	Linseed cake (Holland)	43	98
Cotton meal (not bolted)	55	84	Peanut cake	55	92
Linseed meal	40	86	Rapeseed cake	42	60
Linseed cake (imported)	42	84			

The people of the Netherlands are now consuming American cotton oil in large quantities, but under some other name. They get more cotton oil from margarine than through any other source. This industry is one of the largest in the Netherlands, and the profit on cotton oil is greater than on any other article that enters into the manufacture of margarine. I am reliably informed that the use of cotton oil in the manufacture of margarine will not be curtailed until the price reaches some 5 or 6 florins (florin=40.2 cents) per 100 kilos (220 pounds) higher. The manufacturer will then use a larger amount of oleo, peanut, and sesame oils. The English cotton oil is hardly a competitor with the American product, except with the soap manufacturer. During 1906 only 759,000 kilos of English oil reached here against 17,899,000 kilos from America.

The most popular salad oil is the peanut oil manufactured at Delft, but a vast amount of oil is sold here as a strictly pure olive oil from Italy, and I am quite sure that this oil will be found to be manufactured in Rotterdam, or rather blended and mixed at this place. This particular trade is all carried on by a class of merchants here known as "bottlers," and it is very hard to get any details about it.

The principal oil used by the baker is what is termed "patentolie," supposed to be a combination of linseed and rape-seed oil. This is most popular with bakers, but as a rule they use any cheap oil.

COTTON OIL POPULAR.

There is but one trouble to-day with American cotton oil as a salad and cooking oil, namely, the oil is not here. I have interested the largest oil broker in Rotterdam to get a supply of salad and cooking oils from America, and he is greatly encouraged over the outlook for placing it on the market.

During the month of May there was in progress an exhibition of the café, restaurant, and hotel industry. This exhibition is held annually, and is the only thing in the way of a fair or exposition held at Rotterdam. The English, Germans, and French had various articles on exhibition. The margarine manufacturer was there with his stove showing how to cook with his goods, but there was not an American product of any kind to be found. The exhibition was in every way interesting and was largely attended.

In addition to the edible oils manufactured in this country, the following edible oils are imported:

Kind.	1906.	1905.	1904.
	Pounds.	*Pounds.*	*Pounds.*
Oleo	122,394,800	114,241,600	103,056,800
Cotton	41,635,000	36,614,600	24,464,000
Rape seed	824,800	1,177,000	2,593,800
Peanut	891,000	1,087,800	1,271,600
Sesame	583,000	154,000	129,800
Olive	499,400	596,200	473,000
All others	376,200	323,630	223,020

The largest part of these oils are absorbed by the margarine manufacturer. The exports of that article is as follows:

Year.	Edible.	Raw.
	Kilos.	*Kilos.*
1906	54,049,000	28,582,000
1905	51,295,000	24,753,000
1904	46,584,000	26,743,000
1900	43,688,000	.....
1896	42,643,000	.....

The average price for the best quality of edible margarine at Rotterdam was as follows: 1905, 58 guldens per 100 kilos; 1904, 47 guldens per 100 kilos; 1900, 80 guldens per 100 kilos; 1896, 36 guldens per 100 kilos.

In 1906 Great Britain received 49,134,000 kilos of the edible margarine exported, and the remainder was divided about equally between Belgium, Prussia, and Norway. In 1906 Prussia absorbed 23,081,000 kilos of the raw margarine, and the remainder went to Belgium, Great Britain, and Norway.

The Netherlands exports some peanut oil in small quantities to the United States, Belgium, Prussia, and Norway. The amount going to the latter country being for use in the fish industry.

MORE EXTENDED USE—LINTERS.

To extend the use of American cotton oil in the Netherlands it must be as a salad and cooking oil. The margarine manufacturer now uses as much cotton oil in the manufacture of his different grades of margarine as climatic conditions will permit, and so long as cotton oil remains the most profitable ingredient entering into the manufacture of this compound its consumption will not be curtailed. As a salad oil it will find its greatest competitor in the peanut oil manufactured in this country and the small amount of so-called Italian olive oil imported.

The oils as bottled in America are just as attractive as any you will find on this market, and if the peanut-oil manufacturer in this country can send his bottled oil into America I can see no reason why the American manufacturer should not send his original package into this country.

I am glad to advise that a prominent broker has entered into negotiations with American dealers looking forward to opening a store at this place where nothing but American cotton oil will be sold.

There is now in bonded warehouses at this place only 10,000 barrels of cotton oil against a usual stock of 40,000 for the same time of the year. It will take 50,000 barrels for this market before the new crop reaches here.

The Netherlands is not a large cotton manufacturing country, and the American linter has found but little use here. Some of the best grades are used in manufacturing bed covering. In the manufacture of the mattress kapok is extensively used. The imports of kapok in 1906 were 56,137 bales, and the average price 32 cents (Dutch) per pound (Dutch); and in 1905, 58,485 bales, the average price of which was about that of the preceding year. The price at this time (May 20) is 16 cents per pound.

IMPORTANCE OF THE MARKET.

GROWING DEMAND AT ROTTERDAM—BUSINESS HELPED BY DUTCH OWNERSHIP OF MARGARINE FACTORIES.

Special Agent A. G. Perkins, writing from Rotterdam, January 20, 1908, supplies the following additional facts concerning the trade in oil-seed products in Holland:

Dutch ownership of the principal margarine factories of northern Europe has made Rotterdam the largest market for that article, as well as for the raw materials. During the past few years a number of the smaller plants in Holland, Belgium, and Germany have been bought up by Dutch capital, some of which have been closed down, and even dismantled where the manufacturing costs can not be minimized. The local business is steadily increasing, notwithstanding reports of the unsatisfactory financial results, caused by high prices of the raw materials and keen competition among the manufacturers.

although the volume of the Netherlands' exports, according to Government statistics, has been decreasing, as is shown in the following statement:

Exports.	1905.	1906.	11 months 1907.
	Tons.	*Tons.*	*Tons.*
Edible margarine	51,349	54,049	34,118
Raw margarine	24,802	28,582	24,867
Total	76,151	82,631	58,985

About 90 per cent of the edible margarine goes to Great Britain and about 80 per cent of the raw margarine goes to Germany.

INCREASE IN COTTON-SEED OIL PURCHASES.

One of the largest importers of cotton-seed oil in Rotterdam told me recently that the margarine manufacturers were buying very little cotton-seed oil at present, claiming that the price of the oil is too high as compared with the price of the finished product; in fact, that the lower grades of margarine can not be manufactured at a profit now.

The soap makers of Holland, Germany, and Belgium also patronize this market very liberally in the purchase of materials, especially cotton-seed oil, though for this business, except with a few manufacturers, it is more a matter of price than anything else. The trade, however, in soap oils has dropped off in the last few weeks to almost nothing, as other oils are selling at much lower prices. For instance, cotton-seed oil for soap purposes is quoted at 32 guilders ($12.86) per 100 kilos (2,204 pounds) in barrels, as against 23 guilders ($9.25) per 100 kilos (2,204 pounds) for linseed oil loose at the mills.

Olive, peanut, and sesame oil are sold in nearly all retail grocery stores in bottles; also other oils called table oil and salad oil, which are known to be mixed oils, though the ingredients are not stated. These oils are bought by the retailer in tins and barrels from middlemen (dealers and mixers) and bottled at the stores, and I doubt if the consumer knows what he is getting unless he is a good judge of oils. I went into a store to buy a small bottle of salad oil and was offered a bottle with "sesame oil" on the label and "olive oil" on the seal. These oils sell at retail for 50 to 75 Dutch cents per pint (100 Dutch cents = 1 florin = 40.2 cents American).

For cooking cotton-seed oil is sold in good quantities to the bakers, who also buy from the middlemen in rather small quantities. The bread made here has very little grease of any kind in it, and pastries are not made in any quantities.

The cotton-seed oil business between America and Holland is done altogether through local agents, brokers, and representatives, and under standard brands, the quality of which is well known to the trade. I have learned from several sources that one of the favorite brands has recently deteriorated very much, which has hurt the business to some extent. In the last few years a neutral oil has come into favor with the trade here on account of the improved formula for margarine, though "prime summer yellow" and other grades are of course readily sold.

OIL IMPORTS AND EXPORTS—STOCK IN WAREHOUSES.

In the last ten years the sales of cotton-seed oil through this market have increased more than any other oil, and this increase has been steady. Below I submit the Government (Netherlands) statistics of total imports of oils into Holland for the year 1897 and for the first eleven months in 1907, including the in transit:

Cotton and other oils.	1897.	First 11 months 1907.
	Metric tons.	*Metric tons.*
Cotton-seed oil	31,407	61,567
Peanut oil	1,975	1,420
Sesame and other oils	7,896	16,560

The following statement shows the imports of oils into the Netherlands for consumption during the eleven months ended November 30, 1907:

Whence imported.	Cotton seed.	Palm.	Oleo.	Cocoanut.	Other.
	Metric tons.	*Metric tons.*	*Metric tons.*	*Metric tons.*	*Metric tons.*
United States	16,975	----------	35,778	----------	----------
Belgium	176	----------	1,328	----------	1,811
France	62	----------	----------	----------	406
United Kingdom	1,427	13,567	1,482	1,029	27
West Africa	----------	1,065	----------	----------	----------
Other countries	123	6,361	461	5,423	396
Total	18,763	20,993	39,044	6,452	2,640

The total imports of oils for home consumption during the first eleven months of 1906 were as follows: Olive, 204 metric tons; peanut, 324; cotton-seed, 16,768; rape, 1,260; sesame, 241; palm, 24,249; cocoanut, 7,228; oleo, 53,051; and all other, 298. The total exports of these oils during the first eleven months of 1907 amounted to 68,317 metric tons, of which 23,051 tons were oleo oil. The stocks of oils in warehouses were:

	Cotton-seed.	Peanut.	Other.
	Barrels.	*Barrels.*	*Barrels.*
On hand Nov. 30, 1907	14,419	294	2
Stored during December, 1907	3,787	----------	----------
Total	18,206	294	2
Delivered during December, 1907	7,171	156	1
On hand Dec. 31, 1907	11,035	138	1
On hand Dec. 31, 1906	4,671	----------	----------

A LARGE QUANTITY OFTEN STORED.

The receipts of cotton-seed oil at Rotterdam during December were 18,200 barrels. While the stocks of oil are greater this year than the same time last year, yet it is not uncommon to find stocks of 50,000 to 60,000 barrels in the bonded warehouses aside from the stocks in

the warehouses of consumers. How much of this oil is in first hands can not be ascertained. At times importers accumulate stocks in the warehouses, but more often the consumers will have large supplies stored, as the expense is not heavy and they are able to secure advances from the banks on the warrants issued by the bonded warehouses. Then, too, they do not have to pay the customs duty until the oil is taken out.

I have been through two of the large warehouses of the Blaauwhoedenveem Company, Limited, and saw probably 2,500 barrels of cotton-seed oil stored in their cellars, and was glad to note the good condition of the packages and the manner of storing. The buildings are very substantial, of brick with reenforced concrete floors, and communications from each compartment are through outside passages. The usual charge for storage and insurance of cotton-seed oil in barrels is 7 cents (Dutch money) per 100 kilos (2,204 pounds) per month, though I am told better arrangements can be made on large lots. Receiving and delivering is of course charged extra.

One of the bankers here told me he thought it might be desirable for some of the American shippers to store their products here and borrow money in Holland, which he said could be done cheaper at this particular time than in America. In fact, he said, shippers of other products were doing this now.

TRADE IN OIL-PRODUCING SEEDS—OIL MEAL AND CAKE MARKET.

The imports of oil-producing seeds, nuts, and kernels into Holland during the first eleven months of 1907 amounted to 360,969 metric tons. Of this amount Dutch East Indies furnished 42,643 tons of copra; West Africa 22,105 tons of peanuts and 10,210 tons of palm kernels; Belgium 8,715 tons of rape seed and 41,762 tons of linseed; Hamburg 1,201 tons of peanuts and 22,528 tons of palm kernels; Germany 5,172 tons of rape seed; United States 16,257 tons of linseed; British India 11,378 tons of linseed, and Argentina 155,032 tons of linseed. The imports during the same period of 1906 were: Peanuts, 25,816 tons; palm kernels, 21,878 tons; rape seed, 4,342 bushels, and linseed, 9,002 bushels. There was no record of the copra received. The total exports of oil-producing seeds during the first eleven months of 1906 amounted to 169,430 metric tons, of which linseed amounted to 81,914 tons, copra 37,828 tons, palm kernels 32,255 tons, peanuts 8,963 tons, and rape seed 8,470 tons. Seventy-five per cent of the exports of oil-producing seeds, etc., go to Germany.

The imports of oil cake and meal into Holland during the eleven months ended November 30, 1907, were:

Whence imported.	Linseed.	Rape.	Peanut.	Cotton seed.	Other.
	Metric tons.	*Metric tons.*	*Metric tons.*	*Metric tons.*	*Metric tons.*
United States	154,363			25,171	7,425
Belgium	10,014	992	116	871	875
Germany	41,248	3,245	348	996	755
Other countries	16,725	15	73	551	2,206
Total	222,350	4,252	537	27,589	11,261

The exports of oil cake and meal for the calendar year 1906 were as follows:

Whither exported.	Linseed.	Rape.	Peanut.	Cotton seed.	Other.
	Metric tons.	*Metric tons.*	*Metric tons.*	*Metric tons.*	*Metric tons.*
Belgium	1,450	151	682	----------	358
United Kingdom	357	----------	1,500	4	364
Hamburg	452	----------	1,060	504	386
Germany	27,382	1,022	1,029	23,685	5,876
Other countries	29	60	250	360	----------
Total	29,670	1,233	4,521	24,553	6,984

WHY LINSEED CAKE IS PREFERRED.

As will be seen from the foregoing figures, cotton-seed cake and meal is very little used in Holland, though this is a large market for foodstuffs. Linseed cake, both domestic and imported, is used almost exclusively. The cattle here are usually taken off the pastures and put in the stables about the middle of October to November 1 and stall-fed until April. One trouble with cotton-seed meal is that it rarely reaches this market before December. As the farmers begin buying their foodstuff in October they are forced to begin feeding on other products, and it is much more difficult to introduce an article in the middle of the season than at the beginning. Furthermore, the farmers have to go to the large centers in boats for their supplies, and therefore they nearly always lay in a supply before cold weather sets in and the canals freeze, as the expense of shipping by rail is three or four times as great as by water. There is a small stock of cotton-seed meal in Rotterdam at this time which was sold for December shipment, but as it did not reach this market until after the canals froze it is still on hand.

The demand here, while very limited, often exceeds the supply. I saw a few days ago a letter from one of the farmers' societies requesting offers of double ground cotton-seed meal (bolted) containing 48 per cent protein and 10 per cent fat. This request could not be complied with, as there is none here unsold. One of the largest dealers told me he had made efforts to buy bolted meal from America but could get none offered.

Texas bolted meal with 55 per cent to 58 per cent protein and fat is the best seller, though "valley prime" can, of course, be sold at lower prices, but it is important that it should be finely ground. Texas bolted meal sells for about $1 per long ton more than Texas prime.

The market quotations for oil cakes per metric ton are as follows: Linseed cake, Holland manufacture, $5.62; linseed cake, American prime western and American fancy, $3.68 and $3.88, respectively; cocoanut cake, $3.21; and cotton-seed meal, Texas bolted, $3.52.

While the Holland market is being worked more vigorously than others I have visited, I think the business could be materially increased if shipments were made from America earlier in the season. I understand also that other oil cakes have been introduced among the farmers by distributing small quantities for trial, but I have not

yet heard of any cotton-seed meal being given away. If the American manufacturer would adopt some plan of this sort he would almost immediately create a much larger market for his product, and in a short time would be able to get a fairer price for the best feed.

COMPLAINTS AGAINST AMERICAN MEAL.

TRADE INJURED BY CARELESS HANDLING OF PRODUCT ON SHIPBOARD.

Writing from Amsterdam, May 22, 1907, Special Agent Benton reports that there is complaint in relation to the condition in which cotton meal arrives from the United States, and relates his experience in the discharge of a cargo of meal at Rotterdam. His report follows:

There has been considerable complaint about the condition in which American meal reaches this country. Learning that the steamship Lord Ormonde was expected to arrive at Rotterdam about May 20, I determined to witness the discharge of the vessel. She arrived May 21, and on the 22d I was present during the discharge of cargo, from 8 a. m. until 6 p. m., in which time 2,500 tons of cotton meal were discharged, of which only 200 tons was for Holland, the remainder being destined for points along the Rhine. The American manufacturer would not recognize his meal when placed in the warehouse on this side. But after a careful investigation I do not see that the manufacturer can assist much. The bag should be better sewn, especially for export meal. It should be sewn twice, especially if the average size cotton thread is used. About 20 per cent of the bags are open at the end, and by the time they reach the warehouse 40 per cent of the meal is scattered. The worst damage is from torn bags, but this is not the fault of the manufacturer. Those having charge of loading and unloading the vessel are responsible for the torn bags.

DISCRIMINATION AGAINST COTTON MEAL.

The captain of the boat of course claimed that the bags containing the meal were not good, but flour taken from the same vessel was placed in the warehouse, making an unusually neat appearance. The bag containing the flour was about the same as that containing the meal. The rate of freight on the flour was about the same as the rate on the meal. In hoisting the flour from the hold two very wide canvas bands were used; in hoisting the meal, one large rope. I was told by the officials of the boat that flour was valuable and had to be handled carefully in order to keep the bags from tearing. They did not seem to realize that American cotton meal was worth nearly as much per ton as flour. In one end of the boat and on top of the meal was a considerable amount of cotton oil in barrels. Many of these barrels had been broken from bad handling and the meal underneath was ruined. It was contrary to the rules of the company to place flour near the oil, but it made no difference with cotton meal. The 150-pound bag of meal seemed to be in better shape than the 100-pound bag.

The exports of oil cake and meal for the calendar year 1906 were as follows:

Whither exported.	Linseed.	Rape.	Peanut.	Cotton seed.	Other.
	Metric tons.	*Metric tons.*	*Metric tons.*	*Metric tons.*	*Metric tons.*
Belgium	1,450	151	662	----------	358
United Kingdom	357	----------	1,500	4	364
Hamburg	452	----------	1,060	504	396
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about 40 per cent of the manufacture of cotton products, are all consumed in the southern sections of the United States as a substitute for hay in feeding cattle. When he realized that the small per cent of lint and hulls in the meal was not a foreign substance he took a more friendly interest in cotton meal. His feeding tests with cotton meal had all proven very satisfactory, especially when used with mangels, which is a species of beet grown in this country, and by analysis shows only 2 per cent protein and no fat. It is used in feeding as a substitute for hay. The native hay shows from analysis 12 per cent protein and 2 per cent fat. I induced Dr. van der Zande to make a test of cotton meal that contained a large per cent of lint and hulls—the trade at Rotterdam consenting to furnish the meal gratis. With this trouble eliminated, I am quite sure that the dealers here will take a greater interest in cotton meal.

An importer, whose name is herewith furnished, is anxious to get in communication with American manufacturers of cotton meal. He has in the past imported some meal, but his American connections being far from satisfactory, and the antagonism to meal from the Hoorn station being so severe, he went out of the business. If suitable connections can be secured, and he prefers to deal direct with the manufacturer, he will gladly do a considerable amount of advertising of cotton meal and try to build up a trade.

I found at Rotterdam the peanut mills doing some business with Norway and Sweden in peanut and sesame oils for the fish industries. I also learned from a conference with the European representative of one of the large American companies that their business in oil for Norway and Sweden had doubled in the last year, and that the main competitor of cotton oil in those countries was an adulterated olive oil. I inclose a list of brokers and importers of oils and cake at Rotterdam. While these parties seem to have American connections, it is probable manufacturers may extend their European direct sales, or make changes that may prove advantageous, by communicating with these Rotterdam concerns.

[NOTE.—Names furnished by Mr. Benton are on file with the Bureau of Manufactures and are at the disposal of those engaged in the cotton-seed industry.]

PREJUDICE AGAINST COTTON CAKE.

DECREASE SHOWN IN IMPORTATIONS FROM THE UNITED STATES.

From the result of the investigation made by Consul Henry H. Morgan, of Amsterdam, in reference to cotton-seed oil, which is imported into Holland in great quantities and almost exclusively from the United States, he is of opinion that there is but little room for improvement in the import, except in a small way for salad and table oils. The consuls report, dated January 24, 1908, continues:

Practically all the oil which comes into the country from the United States arrives at Rotterdam, which receives more than any other port of Europe; 75 per cent is edible oil and 25 per cent is *used* in the manufacture of soap. According to official statistics the *stock* of oils in bonded warehouses at the end of the calendar year was

11,035 barrels of cotton-seed oil, 138 barrels of peanut oil, and 1 barrel of sesame oil. The prices per 220 pounds to-day are as follows:

Cotton-seed:	
Choice butter	$13.67
Prime summer yellow	13.27
Soap oil	12.86
Rape oil	15.68
Cocoanut oil	16.08
Palm oil	13.67
Linseed oil	9.25

The import of cotton-seed cake and meal, which is brought into the country almost exclusively from the United States, according to official statistics, has decreased from 34,212 tons in 1905 to 27,595 tons during the first eleven months of the past calendar year. It fell into disfavor among the farmers of the country as a food for cattle, as they claimed that many of their cattle died from eating it on account of the lint which it contained.

If this prejudice can be eliminated I believe a much larger market will be found here for this product, for it is admittedly more nutritious than any other food given to cattle. While linseed cake is known not to be as nutritious as cotton-seed cake, it is used almost exclusively by the farmers for the reason given, and while this cake is largely manufactured in Holland, about 50,000 acres being planted with flax for linseed, the United States shipped to Holland about 220,000 tons of this article during 1907.

BELGIUM.

TRADE IN SEED PRODUCTS.

COMPETITION OF COTTON SEED WITH OTHER ARTICLES—SUGGESTIONS FOR EXTENSION OF AMERICAN TRADE.

Special Agent A. G. Perkins, writing from Brussels, December 26, 1907, furnishes the following review of the trade in vegetable-seed products in Belgium:

Antwerp, aside from being the largest port in Belgium, is one of the most important on the Continent, and by some is considered the largest distributing port in northern Europe. Being in close touch with southern Germany, Holland, Switzerland, and parts of France, with very reasonable freight rates by many canals and rivers, it offers exceptional opportunities to American manufacturers as a market for their products, and especially cotton-seed products.

The total value of imports into Belgium for the year ended December 31, 1906, is given at $666,625,311, and well-informed people tell me that Antwerp handled over 80 per cent of this total. The total exports for the same period is placed at $539,211,152. All this with a population of 7,165,222 and an area of 2,945,589 hectares (hectare=2.471 acres).

Cotton-seed products constitute a very small proportion of the quantities. All oil cakes are entered under one head, and there is no way to determine exactly the quantity of each kind, though from reliable private sources I understand that not over 30,000 tons of cotton-seed cake came through Antwerp during the year 1906, and practically *all of this* came from the United States. Three thousand

tons of the cake reported as coming from the United States were shipped from Mexico, via Galveston, as cheaper freight rates were obtained through Galveston than a Mexican port, and the sailings are more regular. Of this 30,000 tons of cotton-seed cake, fully 15,000 tons go to points along the Rhine in Germany.

COMPARATIVE STATISTICS OF CAKE IMPORTS.

The total Belgian imports of oil cakes in 1904 amounted to 202,041 metric tons, of which the United States furnished 113,915 tons, these amounts advancing respectively to 203,306 and 118,448 tons in 1905. The exports in 1904 amounted to 68,028 and in 1905 to 73,484 tons. The oil-cake trade in 1906 and the first eleven months of 1907 figured as follows:

Countries.	1906.	11 months, 1907.	Countries.	1906.	11 months, 1907.
	Metric tons.	*Metric tons.*		*Metric tons.*	*Metric tons.*
United States	162,202	111,464	British India	3,807	3,143
Russia	24,547	17,311	Spain	1,751	2,311
France	11,569	19,889	Germany	1,892	1,869
Great Britain	9,129	6,730	All other	4,347	5,908
Netherlands	3,339	10,868			
Canada	8,845	5,368	Total	231,428	175,861

No statistics can be obtained for cotton-seed meal, but private estimates place the imports of this product at 15,000 to 20,000 tons, part of which also goes to Germany. Linseed cake is the strongest competitor of cotton-seed cake and meal in this country, though many other cakes are manufactured by the two hundred and odd oil mills in Belgium. These mills are small, as compared with American mills, some of them crushing only 5 or 6 tons per week, though there are about 30 mills with a crushing capacity of 400 to 500 tons per week. The small mills only run when there is a margin of profit in crushing, which is not the case all the time. Flax is also cultivated in Belgium, but almost altogether for the fiber. The seasons for flax growing are so changeable that the crop of seed varies from 5,000 to 12,000 tons per year.

OIL SEED IMPORTS.

The imports into and exports from Belgium of oil seeds for the year 1906, and for the first eleven months of 1907, together with the amount imported from the leading countries, are shown in the subjoined statement, the quantities being given in metric tons:

Oil seeds.	Total imports.		Leading source of imports.			Total reports.	
	1906.	First 11 months, 1907.	Country.	1906.	First 11 months, 1907.	1906.	First 11 months, 1907.
	Metric tons	*Metric tons*		*Metric tons*	*Metric tons*	*Metric tons*	*Metric tons*
Cocoanuts	23,812	23,456	Netherlands	15,538	13,895	3,100	4,853
Colza	57,187	86,665	British India	39,123	80,542	43,115	62,344
Cotton	1,916	243	United States	918		997	61
			British India		153		
Linseed	156,378	190,144	Argentina	69,733	127,743	95,150	97,761
Palm	2,083	979	Hamburg	659		437	38
			Netherlands		816		
Peanuts	8,348	8,895	French Africa	2,537		2,989	4,961
			British India		5,776		
Rape and poppy	20,837	27,789	British India	12,972	26,838	14,055	21,009
Ravison	2,152	1,169	Roumania	815	638	718	276
Sesame	44,341	51,176	British India	35,210	46,194	29,485	42,101

Of the total imports of linseed, the United States supplied 21,827 tons in 1906, and 5,759 tons during the first eleven months of 1907. The United States also furnished during the first eleven months of 1907, 49 tons of cotton seed.

A very good idea of the supplies needed of the various oil cakes for feeding and other purposes may be gained from the amount of live stock in the country, which is estimated as follows: Cattle, 1,420,978, of which 754,093 are milch cows; sheep, 235,722; hogs, 1,163,133; and horses, 487,456. As a foodstuff for cattle there has been a prejudice against cotton-seed cake and meal in Belgium for several years. A merchant in Antwerp who handled cotton-seed meal in large quantities twelve and thirteen years ago told me that the farmers claimed at that time that the fiber or lint in the meal lodged in the throats of the cows, causing sickness; and others said the meal made the milk so rich the cows would not last long as milch cows. It was evident from his description of the manner of feeding that they fed too much. Thus the prejudice originated, and, so far as I can learn, no very great effort has since been made by the American manufacturer to remove this prejudice, and the Belgian importers and dealers, finding cotton-seed cake and meal in very little demand and hard to sell in any quantities in competition with other oil cakes, have paid very little or no attention to the business, preferring to devote their time and attention to other and more salable goods.

CONSERVATIVE FARMERS—CONSUMPTION OF FEED.

The Belgian farmers are an intelligent class, yet they are slow to invest their money in an article which has had such a reputation for so long a time, and it is only by an ocular demonstration they will be convinced of the value of cotton-seed meal as a feed for their stock. A dealer in Antwerp tried recently to buy a small quantity of cotton-seed meal to send to his father's farm for trial, but could not find a single sack in the market. I do not want to create the impression that cotton-seed meal is unknown, for it is used in some sections in a small way, and in other sections the dealers mix it with other feedstuffs and sell it to the small farmers as a mixed feed in sacks marked with the guaranteed analysis, though the ingredients are not known to the consumer.

The amount of commercial feed consumed by cattle in Belgium during the years 1905 and 1906, in quintals of 220.46 pounds, and the average annual consumption per head for these two years, in kilos of 2.2046 pounds, the statistics being obtained from the minister of agriculture at Brussels, was as follows:

Description.	Total consumption.		Average per head.	
	1905.	1906.	1905.	1906.
	Quintals.	*Quintals.*	*Kilos.*	*Kilos.*
Barley	105,739	128,245	5.91	7.21
Corn and corn meal	735,535	947,043	41.13	53.21
Cotton-seed cake and meal	146,939	144,377	8.22	8.11
Linseed cake and meal	1,977,715	1,977,016	110.59	112.21
Other oil cake and meal	295,457	283,418	16.52	15.93
Meat, etc., ground	4,742	4,911	.27	.28
Refuse from breweries, etc.	4,271,669	4,439,974	238.86	249.48
Pulp of sugar beets	18,418,379	11,650,528	694.41	654.84
All other	2,789,616	2,787,984	156.20	156.66

In order to create a demand for cotton-seed products in Belgium the American manufacturers should adopt a more progressive policy than has been pursued in the past. Merely offering the goods for sale will not do under the circumstances. One of the importers in Antwerp told me that he could handle a great deal more cotton-seed meal if American manufacturers would reduce the price; he could then sell the meal in markets where there is already a demand, and thus compete with others in that market.

SUGGESTED TRADE CAMPAIGN.

I would suggest that a supply of cotton-seed meal and cake be sent to some distributing point, like Antwerp, and placed in the hands of a reliable dealer, and that traveling salesmen be employed to visit the different cooperative dairies (there are 484 of these in Belgium, to say nothing of those in southern Germany and other sections) and large cattle owners, with attractive pamphlets printed in the different languages, explaining fully the merits and uses of cotton-seed products both as foodstuff and fertilizer. However, all the literature that could be sent over here would do no good if the goods advertised can not be found in the principal markets.

Several dealers have said the solicitation suggested would be the best way to get the goods established, and as these salesmen would sell at retail prices the expense would be practically nothing, and certainly the best results would be obtained, for when a demand is created other dealers would want to buy. One firm told me they would undertake to handle the business in this way for a commission of 1 per cent and the salaries and expenses of two traveling salesmen, which he said would be sufficient to cover Belgium, Holland, the southern part of Germany, and Switzerland. Good men could be employed for about $5 per day, covering salaries and expenses. This is only a suggestion, but certainly if the American manufacturers take the matter up and push it vigorously good results will be obtained.

THE PREFERABLE SIZE BAGS.

The packages most desired here are the 165-pound bags, as they are used again by farmers in shipping potatoes, turnips, and other farm products. Meal in these bags often sells readily at 12½ to 15 centimes more per 200 pounds than the 100-pound bags, while the 100-pound bags are hard to sell at the reduced price.

Marking bags containing cotton-seed meal is of great importance to both buyer and seller, as that is the only way to prevent mixing of lots, which always means mixing of grades and causes much dissatisfaction. I saw a steamer unloading meal from Galveston. There were several marks, but many of the bags had the marks entirely obliterated by the sifting of meal through holes. Such bags were distributed among the lots according to the number required. Perhaps if the letters used in the marks were 8 or 10 inches long instead of 3 or 4 inches, they might stand the rough handling better; or a strong tag, securely fastened either by wire or on the sewing twine after two or three stitches are taken, might be

better. In the case of mixed lots some one always suffers, and in nearly every case a claim is made against the shipper of the best meal.

Nearly all of the dealers here prefer standard brands. About 60 per cent of the meal coming to this market is from Texas, the largest part of which is "bolted," which is another evidence of the feeder's dislike for the lint or fiber.

USE OF FERTILIZERS.

Of the total area of 2,945,589 hectares (1 hectare=2.471 acres), 2,607,514 hectares are devoted to agriculture, and on account of the dense population it is absolutely necessary for the farmer to get everything possible out of his land, consequently fertilizers are used very largely. Even the pastures are fertilized and cultivated. Below are the amounts used and the various kinds, the total quantities being given in quintals of 220.46 pounds, and the quantities per 100 hectares in kilos of 2.2046 pounds:

Description.	Total quantity.	Quantity per 100 hectares.	Description.	Total quantity.	Quantity per 100 hectares.
	Quintals.	*Kilos.*		*Quintals.*	*Kilos.*
Lime and cinders of lime.	1,019,310	5,571	Superphosphate	1,190,671	6,741
Refuse of sugar refineries.	1,076,737	6,096	Basic phosphate	969,470	5,489
Earth	233,063	1,320	Mineral phosphate	11,283	64
Plaster	6,763	38	Chloride of potassium	46,799	265
Nitrate of soda	802,899	4,546	Sulphate of potassium	20,339	115
Sulphate of ammonia	154,191	873	Kainit	296,275	1,677
Ground bones, meat, horns, and leather	19,530	111	Oil cake	132,790	752
Refuse of wool	97,512	552	Other special preparations	751,682	4,256
Guanos	246,493	1,396			

COTTON-SEED OIL AND OTHER FATS.

Nearly all of the cotton-seed oil brought direct through the port of Antwerp is of summer yellow grade for soap makers. There are 266 soap factories in Belgium. Only a few of the soap makers use cotton-seed oil during the winter, as the majority of them have no formula for preventing the opaque color caused by cold weather, and those who can prevent this are very secretive about their process. Many of the factories in southern Germany (supplied through Antwerp) are using cotton-seed oil to make a silvery white soft soap. For making all kinds of soap cotton-seed oil is preferred to most other oils, though for the past season the consumers say the price has been relatively too high. Cotton-seed oil produces less soap by about 10 per cent than other oils, yet the quality is said to be superior. The other oils competing with cotton-seed oil are corn, linseed, and palm oils, which were imported during 1906 in about equal quantities. The supply of the other oils imported and manufactured in Belgium is not sufficient to be considered seriously.

The margarine factories in Belgium are mostly owned either in part or wholly by Dutch people, and almost all of the prime cotton-seed oil used by them for margarine is bought in Holland, where I am told there is always a good stock of standard grades. These manufacturers prefer to buy in Holland for two reasons—i. e., quick

delivery of goods, which makes it unnecessary to place orders far ahead, and quick settlement of differences.

For cooking purposes little or no oil is used in its natural state; butter, margarine, lard, and lard compound are altogether used for cooking. For the years 1905, 1906, and for the first eleven months of 1907 the following greases were imported:

Articles.	1905.	1906.	11 months 1907.
	Kilos.	*Kilos.*	*Kilos.*
Butter, fresh and salted	4,560,863	5,047,813	5,231,281
Margarine	832	359	45
Lard	14,062,264	13,737,230	11,338,314
Other animal fats	23,255,096	25,442,339	28,219,354

On butter and margarine there is a duty of $2.86 per 220.4 pounds. Lard and other animal greases are admitted free.

The imports and exports of vegetable oils, by countries, for the year 1906 and for the first 11 months in 1907 are given below. More colza, cocoanut, sesame, and peanut oils are exported than imported, which is accounted for by the imports of the raw materials.

Vegetable oils.	Total imports.		Leading source of imports.			Total exports.	
	1906.	First 11 mos. 1907.	Country.	1906.	First 11 mos. 1907.	1906.	First 11 mos. 1907.
	Metric tons	*Metric tons*		*Metric tons*	*Metric tons*	*Metric tons*	*Metric tons*
Cocoanut	1,732	1,342	British India	611	.....	4,462	4,099
			United Kingdom.	.....	766		
Colza	1,815	1,633	France	674	929	4,856	2,964
Corn	9,399	2,588	United States	9,124	1,624	1,731	1,821
Cotton	9,537	8,535	United Kingdom.	4,394	3,516	4,367	4,385
Linseed	9,307	11,848	Netherlands	4,882	8,030	8,222	4,191
Olive	1,938	1,645	France	1,578	1,317	559	293
Palm	7,916	8,530	United Kingdom.	5,382	6,277	828	1,537
Peanut	609	484	Netherlands	410	267	974	571
Rape and poppy	1,061	941	France	1,056	941	27	1,095
Sesame	936	585	Netherlands	487	.....	812	1,095
			France	.....	404		

Price quotations on December 31, 1907, c. i. f., Antwerp were as follows:

	Francs per 100 kilos.		Per gallon.
Off summer cotton-seed oil:			
American	60	=	$0.394
English	54.5	=	.357
Linseed oil:			
In barrels	52.5	=	.345
Loose at mill	49.5	=	.325
Corn oil	56	=	.368
Palm oil	70	=	.459
Colza oil	83.5	=	.548
Cocoanut oil	70	=	.459
			Per long ton.
Cotton-seed meal:			
New Orleans	17.875	=	$35.05
Texas	18.375	=	36.03
Bolted	18.75	=	36.57
Cotton-seed cake	17.375	=	34.07
Linseed cake	18.875	=	37.01
Cocoanut cake	19.50	=	38.24

There could easily be a far better understanding between the American manufacturer and European buyer, for in nearly every case of mixed shipments where a claim arises for short weight or

deficiency in quality there seems a lurking suspicion on the part of the buyer that the shipper is at fault. One firm of importers told me they would like to be invited to become a member of the Inter-State Cotton Seed Crushers' Association, and to attend their conventions, and that he felt that many others would also like the same privilege.

There are several firms in Antwerp who would like to correspond with American manufacturers with the view to forming business connections [names on file in the Bureau of Manufactures].

DECREASED SUPPLY OF COTTON SEED AND COMPETING PRODUCTS.

Special Agent Perkins, writing from Antwerp, December 10, briefly reports regarding quantities of cotton-seed oil, cake, and meal and competing products on hand on the date named.

I have made careful inquiry as to stocks on hand at Antwerp, and while exact figures can not be given, from the best information obtainable the following may be accepted as approximately correct (1 kilo = 2.2 pounds; 1 metric ton = 2,204 pounds):

Articles.	Amount.	Articles.	Amount.
	Kilos.		*Metric tons.*
Cotton-seed oil	60,000	Cotton-seed cake and meal	1,000
Rape-seed oil	250,000	Linseed cake	9,000
Sesame oil	25,000	Cocoanut cake	6,000
		Linseed	3,500

The arrivals of cotton-seed cake at Antwerp since October 1 aggregated 18,930 sacks, the estimated weight of which is 1,135,800 kilos.

For the past twelve or eighteen months the stocks of oil in this market have not been large, but I am informed that on account of the low prices of cotton-seed oil the stocks of other competing oils are likely to increase from this time forward, as cotton-seed oil is preferred by soap makers when prices are on a parity. The stocks of linseed in Belgium are estimated by reliable firms at Antwerp to be between 150,000 and 175,000 metric tons.

BRUSSELS.

PREJUDICE AGAINST COTTON MEAL—COTTON OIL AND CAKE.

Gregory Phelan, vice and deputy consul-general at Brussels, reports as follows under date of May 27, 1907:

A small amount of cotton-seed cakes is annually used by Belgian farmers, principally as feed for sheep. The farmers do not esteem it as a valuable food for stock, asserting that in general it disagrees with their animals. Inexperience in the use of this food, coupled with existing traditions, doubtless operates against its popularity and use in this country. There are no statistics showing the annual aggregate quantity and value of the sale of cotton-seed cakes in this consular district. Cotton-seed linters seem unknown on this market.

Cotton-seed oil and cotton-seed cakes are imported into this country and put to various uses. There are no statistics showing the amount in gallons and pounds annually consumed in Belgium. Cotton-seed oil of good quality comes into competition with peanut and sesame oils in the manufacture of margarine, and is employed in mixing with olive oil. Prime summer yellow, previously exclusively used in the manufacture of margarine, is frequently replaced by peanut oil and sesame oil, and is also imported from the United States. The market value of these last two oils is respectively from $14.47 to $19.30 per 100 kilos (220 pounds) and $12.54 to $17.37 per 100 kilos. Prime summer yellow of extra quality is also used in mixing with olive oil and occasionally used in its pure state as a table oil for salads, etc. It is difficult to ascertain the amount consumed in this country, as many firms buy through agents in other countries. Off summer yellow is extensively used for industrial purposes when quotations are not too high. This oil could be sold in large quantities in Belgium if offered at reasonable prices.

Corn oil, imported from the United States and used in soap making, comes into competition with cotton-seed oil, but of late this importation, from some unknown cause, has decreased to almost nothing.

SOURCES OF SUPPLY.

The following table shows the amount of importations of the olive, cotton-seed, and corn oils for domestic consumption, and the countries from which each was imported during the year 1906:

Country.	Olive oil.	Cotton-seed oil.	Corn oil.
	Pounds.	*Pounds.*	*Pounds.*
United States	.....	6,487,884	20,024,972
England	35,682	9,806,221	251,911
France	3,214,658	6,241	.....
Germany	27,958	.....	.....
Hamburg	42,594	28,050	43,663
Holland	59,814	4,190,014	164,465
Italy	332,350	.....	.....
Spain	17,415	.....	.....
Other countries	174,724	207,913	132,442
Total	3,905,195	20,726,323	20,617,458

Of other oils that are competitive with cotton-seed oil the imports were: Poppy oil, 2,348,017 pounds, nearly all from France; peanut oil, 1,111,356 pounds; cocoanut oil, 3,487,314 pounds; lard, 30,240,014 pounds, of which 26,903,807 pounds are credited to the United States; butter, 11,101,393 pounds, the bulk of it from Holland.

COMPETING PRODUCTS.

The different products which compete with cotton-seed cake and meal as feedstuffs are: Linseed cake, price per 100 kilos, $3.47; colza cake, $2.50; peanut cake, $2.94 to $3.23; sesame cake, $2.86 to $3.67; cocoanut cake, $3.18.

The products which compete as fertilizers are: Colza cake, price per 100 kilos, $2.50; ravison cake, $2.12 to $2.31; castor-oil cake, $1.93 to $2.12.

All these products are in great demand, but it is impossible to differentiate the sale in Belgium, as a great part of those manufactured

in this country are exported to France and Germany. The importation of cotton-seed oil has undergone the following fluctuations: Importation in 1904, 12,229,567 pounds; 1905, 23,342,669 pounds; 1906, 20,726,323 pounds.

The importation of cotton seed was as follows: In 1904, 14,805,776 pounds; 1905, 4,431,291 pounds; 1906, 3,809,018 pounds.

INCREASED DEMAND FOR COTTON-SEED PRODUCTS.

During the last few months the demand for cotton-seed products has increased very notably, and a good deal of cotton-seed oil has been imported. All table oils, as far as can be ascertained, are furnished in sufficient quantities for consumption, but a great many producers buy large quantities of cotton-seed oil to mix with edible oils, especially olive oil. For the manufacture of feedstuffs the bolted and double-bolted meals from Texas and New Orleans are mostly used.

The Government makes no objection to the use of cotton-seed oil if it is sold under its own name, but if sold as olive oil the royal decree of December 28, 1896, enacts certain penalties against the persons who are guilty of such fraud. Cotton seed and cotton-seed products are free from duty in Belgium.

The following table gives the full imports of cotton seed for the year 1906 and countries from whence imported:

Country.	Pounds.	Country.	Pounds.
United States	2,018,764	Turkey	442,200
Brazil	448,140	Other countries	216,388
British India	554,840		
Hamburg	128,687	Total	5,809,019

ANTWERP.

CONDITION OF THE MARKET FOR MEAL AND OIL.

Consul-General Henry W. Diederich, of Antwerp, makes the following report on the trade in cotton-seed products and their competition with linseed products in Belgium, under date of December 13, 1907:

There is practically no sale for cotton seed at Antwerp. No reasons could be given by the different merchants why American cotton seed and cotton-seed cake had been entirely supplanted by American linseed and linseed cake, and it must be due entirely to this market having been neglected. The Belgian farmers only know of linseed oil cake and are therefore prejudiced in its favor. Of the 232,744 tons of oil cake of all kinds imported into Antwerp in 1906, 162,201 tons came from the United States, and of the 156,315 tons of linseed 25,728 tons came from the United States. The total importation into Belgium for 1906 of cotton seed was 1,731 tons, divided as follows: 917 tons from the United States, 203 tons from Brazil, 252 tons from British India, 201 tons from Turkey, and the balance from various other countries.

Notwithstanding the fact that cotton seed oil cake and cotton seed are far richer in fattening properties than linseed I do not think that consumers could be prevailed upon to use it without practical demonstrations of that fact, not even with prices lower than those now paid for linseed cake. Cotton-seed shippers, therefore, must be prepared to make sacrifices in order to get a footing on this market, and it would seem to me that the only means of accomplishing this end is to instruct the Belgian farmer as to the advantages of the cotton-seed product. One way would be, for example, to distribute sacks of cotton seed for fattening purposes and thus prove that, in equal quantities, cotton seed goes much farther than linseed. This campaign can not be expected, however, of the local brokers or dealers. It must be done by someone who knows how to show the merits of the article and also how to use it. This is the only practical way to bring about results. It is useless to attempt the campaign by any other method. The Belgian peasant can not be compared with the American farmer, who reads his agricultural papers and benefits therefrom. Here the peasant adheres to the customs and traditions of his ancestors, and nothing that he reads has any effect upon him unless it is illustrated by an ocular demonstration. It would require a few hundred tons of cotton seed and cotton oil cake, an energetic man fully up in the technicalities of the trade, and a dogged determination and unwearying patience to get the first start. I have no doubt the rest would be plain sailing.

FAILURE OF CRUSHING TRIAL—OIL PRICES.

About three years ago a few Belgian linseed crushers attempted to manufacture cotton oil from cotton seed which they imported in small quantities from Egypt and India. The trials, however, were not at all satisfactory. The manufacturers succeeded in obtaining a reddish oil similar to raw cotton oil, but they could not give it the required color in refining. This seems to be a specialty of English and American cotton-seed crushers, who will on no account part with their secret. The attempts, therefore, have been given up, and it is not probable that further trials will be made.

The prevailing prices for cotton oil on the Antwerp market, f. o. b., barrels included, on December 16 were: English, $10.71 per 100 kilos (220.4 pounds); American, $11.86 per 100 kilos. There are practically no stocks whatever, shipments made in all cases being previously contracted for.

The prevailing price of linseed oil was $9.07 per 100 kilos naked at mill. It is stated that the River Plate linseed crop is abnormally large, and that there are further prospects of a very good crop from India. This will consequently reduce prices of linseed oil very considerably, thus indicating bad sale prospects for cotton-seed oil owing to the much lower prices of linseed oil.

DENMARK.

MARKET CONDITIONS.

COOPERATIVE FARMING—RELATIVE USE OF FEEDSTUFFS—OUTLOOK FOR COTTON OIL.

Special Agent J. L. Benton, writing from Copenhagen under date of June 9, 1907, furnishes the following report on the sale and consumption of cotton-seed products in Denmark:

Agriculture is Denmark's most important industry. The statistics show 88 per cent of the country's export under the heading "Agricultural produce," while manufactures represent only 8 per cent and fishing 4 per cent. Denmark's population was in 1906, 2,600,000. Of that number 54 per cent belonged to the agricultural classes, of which 46 per cent were actual farmers. Only one-fifteenth of the agricultural population are tenants or renters; the remaining farmers are freeholders. The laws prevent the creation of large farms, as it is forbidden to join small farms and thus make large plantations. The following tabular statement shows the classification of lands and the total acreage of the several classes:

Acres.	Number.	Total.	Acres.	Number.	Total.
7 or less	116,614	239,604	67 to 135	25,615	2,346,295
7 to 11	16,988	159,832	135 to 270	6,502	1,169,484
11 to 22	28,992	473,598	270 to 540	1,590	574,946
22 to 33	17,723	496,962	540 and over	822	964,327
33 to 67	35,257	1,752,121			

In addition to the foregoing there are some 68,000 small holdings. The quantity of land usually belonging to each holding is about 4 acres. On a holding of this size there are usually a couple of cows, a dozen pigs, and 50 to 150 fowls. The value of such a holding is reckoned at about $1,200, including the live stock. Many of these small holdings are now worked as perfect model farms, and by intense cultivation usually give the owner a moderate income.

COOPERATIVE MOVEMENT.

It is on Danish soil that the cooperative movement has reached the greatest development. This movement is almost entirely confined to the agricultural classes, and the object is the economical disposition of their farm produce and the purchase of all necessities. The principal societies comprise the cooperative dairies, the cooperative bacon factories, and the cooperative egg export organizations.

The first cooperative dairy was established in 1882. Now there are 1,085, with 158,170 members, and by these about 4,506,000,000 pounds of milk are annually treated, from which 176,000,000 pounds of butter are produced. In 1903 there was in Denmark a total of 1,830,466 head of cattle, of which 1,066,698 were milch cows. Of

these cows, 90 per cent were on farms delivering milk to the cooperative dairies. In addition to the cooperative there are many private dairies. The average annual amount of milk per cow is 5,700 pounds. The production of milk per cow is greater on the small than on the large farms. The most important of the large dairies is Trifoleum, in Haslev, which is not only Denmark's but the world's largest dairy. This dairy has 85 members, with 12,000 cows, and employs daily 400 persons. Denmark's total export of butter in 1906 was 169,796,000 pounds, and the average price was 24.8 cents per pound. Nearly all of Denmark's export of butter goes to Great Britain.

BACON FACTORIES—EGG EXPORTS.

The bacon factories are similar to the dairy societies. The first one was founded in 1887. There are now 33 in operation, with a total of 91,000 members. In 1906 the 33 factories slaughtered 1,051,358 pigs. These factories fix every week a certain quotation, according to which the members are paid in advance a certain sum, dependent on which class (first, second, or third) the pig is judged to belong to. At the end of the financial year the accounts are brought forward, expenses paid, and the remainder paid to the members. Every pig killed in Denmark is supposed to be examined by a veterinary surgeon appointed by the Government and under control of department of agriculture. The largest cooperative bacon factory is at Esbjerg. It has 8,600 members and slaughters annually 100,000 pigs. The average pay of employees of this plant is $350 per year. Total export of bacon in 1906 was 174,350,000 pounds, and the average price 12.7 cents per pound.

There is also what is known as the Danish cooperative egg exporters. This society has 500 local centers, and uses the branding system on all eggs. For examination of eggs electric light is used. This society exported in 1906, $1,250,000 worth of eggs. The total export of eggs in 1906 was 32,933,333 dozens, the average price was 21 cents per dozen. As in butter and bacon, Great Britain was the largest purchaser of Danish eggs.

FEEDSTUFFS.

In developing the dairy and bacon industries the Danish people, through their numerous cooperative societies, have devoted much time and study to feedstuffs. They now claim to be the most economical and scientific feeders in the world. Twenty years ago the linseed was the cake most desired by the feeder. Then came a few years of rape cake, and after that the sunflower cake from Russia met with favor. It is now the American cotton cake that the Danish feeder most desires. In 1906 the imports of cotton cakes from the United States equaled the imports of all other oil cakes from all other countries. Danish authorities rank the several oil cakes in respect to their feeding value as follows:

Peanut	135	Sunflower	116
Cotton:		Rape seed	113
Decorticated	137	Linseed	112
Undecorticated Bombay and Egyptian	90	Cocoanut	103
Sesame	127	Palm	92
		Wheat bran	93

The imports of oil cake for 1906, according to Danish statistics, are as follows (1 pund=1.1 pounds).

	Punds.		Punds.
United States	405,100,000	Russia	242,730,000
Sweden	820,000	All others	3,460,000
Germany	96,730,000		
Great Britain	41,820,000	Total punds	825,880,000
France	35,220,000	Total pounds	908,468,000

Of this amount 764,880,000 punds (841,368,000 pounds) were received for consumption, and the average price for all was $29.40 per ton, c. i. f. Copenhagen.

MOVEMENT AND PRICES OF CAKE.

The import of oil cake for 1905 was 810,100,000 punds (891,000,000 pounds). The oil cake from Russia was all sunflower, with exception of 24,000 tons, which was cotton cake. This Russian cotton cake in manufacture and feeding properties equals the best American cotton cake. It is produced in provinces just northeast of Persia and reaches this port from the Caspian Sea via St. Petersburg. It is usually bought of merchants at Baku, located on the west side of the Caspian Sea. The north Russian sunflower cake comes mostly from provinces of Saratof and Samara via St. Petersburg. The South Russian sunflower cake comes via Mediterranean and is mostly from the Black Sea ports of Odessa and Novorossiisk. Some little of the sunflower cake is round in shape (called peasant cake) and on account of its bad pressing is loose and sours quickly. Both sunflower and cotton cake come loose (not sacked).

Some undecorticated cotton cake comes from Bombay and Egypt, but mostly from the latter. The Bombay cakes show a more regular composition, with a total contents of nitrogen and fat of 23 to 25 per cent. This in the Egyptian cake varies from 26 to 37 per cent.

The oil cake from Germany is rape, palm, and linseed; that from Great Britain mostly palm, and from France, peanut and sesame.

The local prices to consumers of the various oil cakes for 1906 were as follows, per long ton:

Month.	Cotton.	Peanut.	Rape.	Palm.	Sunflower.
January	$36.45	.....	$30.24	$38.24	.....
February	36.45	.....	30.78	32.13	.....
March	34.84	$36.45	30.51	32.13	$36.72
April	34.84	36.45	29.70	32.13	36.72
May	35.64	36.18	30.51	31.88	33.48
June	35.91	36.18	30.51	31.88	33.21
July	36.18	36.45	30.51	31.88	32.94
August	36.18	37.00	31.28	32.13	35.10
September	35.91	37.00	31.28	32.13	34.64
October	35.64	37.00	31.50	32.13	33.48
November	35.18	36.69	31.50	32.40	34.50
December	34.84	36.69	31.69	32.40	34.20

RAPE SEED AND LINSEED.

In 1906 4,140,000 punds (4,554,000 pounds) of rape seed and 50,332,000 punds (55,365,200 pounds) of linseed were imported for manufacturing. The linseed originated as follows (1 pund=1.1 pounds):

	Punds.		Punds.
United States	11,290,000	Norway	1,150,000
Russia	3,150,000	All others	4,282,000
Germany	19,780,000		
Great Britain	10,390,000	Total punds	50,332,000
Holland	290,000	Total pounds	55,365,200

In 1905 the total import of linseed amounted to only 35,570,000 punds (39,127,000 pounds). The imports of bran and gluten meal were as follows:

	Punds.		Punds.
United States	4,710,000	France	75,000
Sweden	1,580,000	Norway	1,080,000
Russia	13,290,000		
Germany	29,910,000	Total punds	149,995,000
Great Britain	98,950,000	Total pounds	164,994,500
Belgium	400,000		

Of this amount 148,790,000 punds were received for consumption, of which 145,960,000 punds were bran and 2,830,000 punds gluten meal.

The present stock of oil cakes in Denmark is considered somewhat larger than usual, but the stock is mostly off-quality cake. It is supposed to be sufficient for the summer months and will be exhausted by October. Practically no meal reaches this country, as the farmer prefers to take the cake and break it with his own machinery. There is not so much waste in shipping cake as in meal, and it is indeed fortunate that this country, which as a purchaser of oil cakes is the largest in the world, takes the cake in preference to the meal.

Owing to the bad condition of all corn imported, the question of a suitable feed for hogs is at the present occupying the attention of Danish feeders. For many years cotton meal has been successfully used here in a small way as a hog feed. I am reliably informed that the extensive use of cotton oil cake as a feed for hogs will be advocated.

COTTON OIL.

The duty on cotton oil in Denmark is $4\frac{1}{6}$ øre per pund ($0.0112 per $1\frac{1}{10}$ pounds). This duty applies to all edible oils. Pure lard and compound lard are admitted free. So little edible oils are received here that the Government keeps no definite statistics of each. The best information from dealers indicates that only about 11,020,000 pounds of edible oils were consumed in this country during the year 1906. Of this amount 4,408,000 pounds, mostly sesame oil, was manufactured in Denmark. The imports were as follows:

	Pund.
Cotton oil	1,500,000
Peanut oil	1,000,000
Sesame oil	2,000,000
Neutralina	1,500,000
Total	6,000,000

Neutralina is an American product. It contains about 90 per cent cotton-seed oil, and coming as compound lard (duty free) is finding a ready market with the margarine manufacturer. The product has been coming here for only a few months, and it seems that one American manufacturer is supplying the trade.

In Denmark there are but two mills manufacturing edible oils—one at Copenhagen, devoted entirely to the manufacture of cocoanut oil, and one at Aarhus manufacturing cocoanut, peanut, and sesame oils. The plant at Copenhagen in 1906 (the second year of operation) manufactured 8,000,000 punds of cocoanut oil. About one-half of this was consumed in Denmark and the remainder exported to Norway, Sweden, Holland, and Great Britain. The cocoanut butter manufactured at this plant is advertised extensively, and found in all shops in a neat and attractive paper package of one pund each. The nuts are imported from Java, the Straits, and Ceylon. The average yield in manufacturing is 61 per cent oil, 37 per cent cake, and 2 per cent waste. The crop is reported short and prices continue high. The total import of cocoanuts was, in 1906, 21,410,000 pounds and in 1905, 18,400,000 pounds.

In addition to the two plants named, there are four plants engaged in manufacturing linseed and rape-seed oils, the rape seed being imported from Germany and the linseed from Russia, North America, and Argentina. The six plants crushing oil-bearing seed employ 410 people, with an average pay to operatives of 3½ kroner per day (1 krone=26.8 cents).

MANUFACTURE OF MARGARINE.

Practically all cotton oil received by Denmark enters into the manufacture of margarine. For cooking purposes pure lard and compound lard are used, and the salad oil is supposed to be pure olive oil, but analysis shows it 80 per cent cotton oil and 20 per cent olive oil. Sixteen margarine plants are now in operation, employing 1,807 operatives. Two margarine plants closed down during the past twelve months and the industry in this country is not supposed to be in a very flourishing condition. The production of margarine in 1906 was 52,725,361 pounds; 1905, 48,042,426 pounds; 1900, 35,784,002 pounds. The average price was, for first quality, in 1906, 16.6 cents per pound; second quality, 12.3 cents per pound; in 1905, first quality, 15.5 cents per pound; second quality, 11.5 cents per pound.

In addition to that manufactured, the imports of margarine, in 1906, were 9,581,000 pounds; 1905, 7,458,000 pounds; 1904, 6,413,000 pounds. The greater part of the imported margarine comes from Holland and the remainder from Norway and Sweden. No margarine is exported from Denmark. The duty on the raw material will not permit the Danish manufacturer to compete with the manufacturer of the Netherlands, where the raw materials are received practically free of duty. No duty is imposed on margarine imported into Denmark. Margarine manufactured in Denmark must contain at least 10 per cent sesame oil, not over 15 per cent butter fat, must be white in color, and the package must be oblong in shape. These requirements are imposed by law to guard the reputation of Danish butter, which is the largest product exported from this country.

There is at present much agitation here in regard to lowering the duty on edible oils, as well as a change in the present margarine law.

It is expected that some action will be taken on the two amendments during the present year. During the past winter an experiment was made at this place in the manufacture of cotton oil, but the result was not satisfactory. The manufacturer claims, however, that he has succeeded in importing the English cotton oil and improving the quality sufficient to compete with the American product as an edible oil.

OUTLOOK FOR COTTON OIL NOT ENCOURAGING.

I regret to say that little encouragement is presented for an increased use of cotton oil in this country, except through the margarine industry. The people of this nation are educated to the use of pure lard as a cooking fat. They believe in the excellence of their lard as fully as they do in that of their bacon. The production of hog lard, when not sufficient for their wants, will naturally be supplemented with the importation of lard—mostly hog lard. The reduction of the present high duty on cotton oil would greatly increase its consumption by the margarine manufacturer, and will enable the manufacturer of Denmark to be on an equal footing with his competitor in Holland.

I forward a copy of the present margarine law. Section 14 is as follows:

> Margarine and margarine cheese must contain a "Røbestuff," which is easily proved by chemical analysis, and which has no influence whatever on the quality or color of the margarine or the margarine cheese. Fat emulsions must in the same way contain a "Røbestuff" easily seen by chemical examination. The further particulars about same are fixed by the minister of agriculture.
>
> Margarine, margarine cheese, and fat emulsions must not be manufactured, imported, exported, transited, or sold when the article does not contain the "Røbestuff" demanded.

In order for the manufacturer to comply with these provisions the minister of agriculture has designated the use of 10 per cent sesame oil. This was opposed by the manufacturer, because the price of cotton oil is less than that of sesame oil. It is now thought that the use of 5 per cent sesame oil will be sufficient to comply with the section quoted. This reduction is within the power of the minister of agriculture, and an effort should at least be made to secure it. The reduction of this rule from 10 per cent to 5 per cent sesame oil will practically double the consumption of cotton oil in Denmark.

There is not a pound of soap manufactured in this country, and the field looks especially interesting for an American manufacturer.

No linters are used. I do not see any future in this country for linters.

SUPERIORITY OF THE AMERICAN PRODUCT—COMPETITION AND PRICES.

The following, in continuation of his report on market conditions in Denmark for cotton-seed products, is furnished by Special Agent Benton from Aarhus under date of June 15, 1907:

The statistics of Denmark for 1906 show the import of 825,800,000 punds (908,468,000 pounds; 1 pund = 1.1 pounds) of oil cake. Of this, the port of Aarhus received 214,901,500 punds, placing it among the first ports of the world for oil cake. While American cotton cake forms about two-thirds of the receipts here, all known commercial oil cakes are imported and can be found in stock any season

of the year. The cakes are of many different shapes, but the Danish feeder has no objection to any shape. The 18-inch square sunflower cake is as easily handled as the round peanut cake, and neither is preferred to the oblong American cake. All are run through a small breaker before using, and consequently the shape is immaterial. The machine used for this purpose is about the size of that usually seen in mills elsewhere, except that it is made up much lighter.

The discharging of cake in Denmark is in every way more satisfactory than that of meal at Rotterdam. Broken bags are seldom noticed, and apparently the only improvement that can be made is the better sewing of the bags and the loading into the ship of each mark separately. All other oil cakes are shipped loose and the trade is well pleased with this method. In the shipment of sunflower cake a very cheap bark matting is used to keep the various lots separate. The cost of discharging is slightly more on the loose cake, and it takes about twice as long as when in bags. The loose cake is sold with a guaranty of not over 25 per cent broken cake, a quarter cake being considered equal to a whole cake. I understand there is never room for complaint on this. The time it would take in discharging an American cargo is the greatest objection to shipping it loose. Practically no attention is now paid to separating the different marks. The loose shipments would therefore answer about as well, and the cost of the bags to the American manufacturer would at least be saved.

COST OF DISCHARGING CARGO.

The cost of discharging at Aarhus per 2,000 punds (2,200 pounds) is given below. The charge is paid by the ship and the receiver, respectively, in the proportions stated. The figures in the following table represent øre, 1 øre being equal to 0.027 cent United States currency:

Articles.	Ship pays.	Receiver pays.	Total.
American cotton cake	55	30	85
Oil cake from Black Sea	90	70	160
Oil cake from Baltic Sea	70	70	140
Peanut cake	90	70	160

It would, of course, be interesting to the trade to know how much of each of the various cakes are received in Denmark; but this I am unable to give, owing to the fact that everything is put under the heading "oil cakes." However, I give below the purchase of various oil cakes made during 1906 by the Jyds Andels-Foderstofforretning (Jutland Cooperative Feedstuff Company). This company is the largest individual buyer of oil cakes in Denmark, and all cakes purchased are for consumption by its various members. The following table will serve to give some indication of the average purchase of each of the various cakes:

Cake.	Pund.	Cake.	Pund.
Cotton	75,476,403	Peanut	1,289,821
Sunflower	19,863,940	Sesame	254,734
Rape	2,154,081	Palm	114,197
Linseed	10,282,822		
Hemp	9,067,853	Total	118,609,851

Below will be found table showing the analysis of all oil cakes received in Denmark during 1906. This table is given back as far as 1901, in order that the American manufacturer can see that under Danish classification American cotton cake is not as even running as the competitive cakes. The decline of protein and fat in the American cake is frequently discussed in the press of this country, and the cause usually given for this is the bad quality of seed now being used for planting purposes. That may be correct. However, this decline is the subject of much comment in this country. The table follows:

Cake.	1900-1901.	1901-2.	1902-3.	1903-4.	1904-5.	1905-6.	1906-7.
Cotton:	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per ct.*
Russian and Texas							56.5
Common Quality	57.0	55.71	54.58	52.99	50.13	49.52	48.4
Bombay							28.9
Sunflower	48.5	48.91	49.78	48.43	47.67	48.35	47.1
Saratow, square				48.39	47.07	48.12	47.9
Baltic, long				48.94	49.24	49.43	49.0
Black, thin				47.10	47.65	47.43	47.5
Rape	43.0	40.64	39.87	42.10	41.37	41.05	41.5
Linseed	39.9	40.27	38.97	38.69	38.68	37.97	38.4
Germany				38.76	39.68	37.88	38.2
North Russia					36.11	39.49	38.9
Local				38.40	39.94	37.83	39.0
Hemp	41.1	40.52	41.37	41.94	40.89	41.42	41.0
Thick, 3 to 4 inches				42.12	40.53	41.73	40.9
Thin, 1¼ inch				41.68	41.16	41.10	41.2
Peanut	56.6	57.80	57.24	58.15	57.85	56.32	57.0
France				56.89	56.93	55.94	56.1
Local				61.07	59.33	57.45	58.2
Cocoanut	33.8	31.17	30.76	31.42	31.49	31.34	32.2
Palm	26.6	24.24	26.83	25.33		24.88	25.3
Sesame	56.2		54.92	54.00	53.85	54.67	52.3

RELATIVE VALUE OF OIL CAKES.

Of course the consumption of each cake is the most valuable indication of what is thought of it, but the following statement from a prominent Danish authority represents about the consensus of opinion of the various oil cakes. He says:

The peanut cake is a very valuable one. It may be that at first the cows will dislike it, but generally and absolutely good effect must be seen in the quality of milk by the use of this cake.

The cotton-seed cake, with contents similar to the peanut cake, and the same good qualities and effects, is rather hard and should be crushed rather fine. This cake is tasty and extremely healthy for the cows even in greater quantities (6 to 7 pounds).

The sunflower cake is frequently used. It is a very good cake for the cows; still it is, according to its contents, rather too dear, as it takes five-sixths of a pound to make up for 1 pound of corn.

Sesame cakes are very much like and about the same as sunflower cake.

Rape cakes are not much used, and should not be, as they often have been adulterated by other seed of poisonous character.

Palm cakes have quite exceptionally low contents of albumen and are therefore less valuable. The cakes contain a fat stuff of a hard consistence and usually have a bad effect.

Hemp cakes are usually applied for breeding, to which they are exceptionally fit; but they may also be used for mixing for milch cows when price is corresponding with contents.

Linseed cakes are usually somewhat expensive in proportion to their contents, but do very well with young calves.

STRONGEST COMPETITORS OF AMERICAN CAKE.

Sunflower cake.—Three grades of this cake usually reach the Denmark market and are commonly designated as "Saratow," "Baltic," and "Black." The Saratow is 18 inches square and is prized more highly than the others, usually bringing about 5 marks more than the Baltic and 10 marks more than the Black. New crop cake from the Black Sea will reach this market in December. That from the Baltic, owing to deficient transportation, will be delayed until May. The average freight from the Black Sea is $3.25 to $3.75 and from the Baltic ports $1.90 to $2.40 per long ton. The production of this cake is increasing rapidly, as will be seen from consular reports already published. The production doubled in the four years previous to 1901 and has, no doubt, increased since that date.

Linseed cake.—The bulk of this cake is manufactured in Denmark. A little comes from the Baltic ports, but the bulk comes from Germany. The rate of freight from Hamburg is from 80 cents to $1.30 per long ton.

Hemp cake.—This cake comes entirely from the Baltic ports—Libau, Riga, and St. Petersburg—the first of the new crop cake reaching here in September. This cake usually comes in two grades—one 4 inches and the other 1½ inches thick. The thicker one commands the best price.

Peanut cake.—With the exception of the small amount manufactured at Copenhagen and this place, all comes from Marseille. The rate of freight varies from $2.50 to $3.50 per long ton. The production of peanut cake at Marseilles is estimated at 125,000 tons annually.

The following table gives the sale price of oil cakes per unit in 1906 (1 øre=0.027 cent):

Cake.	Number of feeding value units (2:2:1).	Price per hundredweight.	One feeding value unit is paid with—
	Average.	*Øre.*	*Øre.*
Linseed	112	690	6.2
Rape seed	113	590	5.2
Cotton seed (decorticated) (best quality)	137	630	4.6
Cotton seed (decorticated) (common quality)	123	590	4.8
Sunflower	116	610	5.3
Hemp seed	96	480	5.0
Earth nut	135	690	5.1
Palm nut	92	595	6.5
Cocoanut	103	610	5.9
Sesame	127	635	5.0
Wheat bran	93	525	5.6

Prices per 1,000 kilos on oil cakes c. i. f. Aarhus, June 15.

Cake.	Marks.	Cake.	Marks.
Cotton:		Rape:	
Texas	141	Germany	136
New Orleans	134	France	131
Bombay	87	Linseed, Germany	122
Russia	148	Hemp, thick	101
Sunflower:		Hemp, thin	114
Saratow	146	Peanut, France	148
Baltic	141	Cocus	148
Black	136	Sesame	148

The quotations are for summer shipment for Texas and New Orleans cake and for July-August in other cases.

It will be seen from the first table that cotton cake did not bring in 1906 the price of competitive cakes of less feeding value, and from the second table it will be noticed that this difference is still greater. If in 1906 cotton cake had brought the same price as the competitive cake, the manufacturer in the South would to-day be a half million dollars better off on the shipment of oil cake to Denmark alone.

COTTON CAKE SUPERIOR TO OTHERS.

It has been demonstrated in Denmark that no other cake is as productive of fat in milk as the cotton cake. Feeders of every class are fully aware of this, and cotton cake is prized more highly than in the United States. To locate a reason for the inadequate price is difficult. One importer claims that cotton cake is not as even running as the other cakes and an allowance must be made, while another importer claims that it is due to a lack of confidence in the American dealer making delivery in accordance with the contract. There is no doubt that American export business, and especially that of cotton cake, will suffer temporarily on account of the recent Hamburg-Galveston trouble. Steps should be taken to restore confidence and insure a "square deal" on both sides. Then the sale of cotton cake on the unit (sliding) scale will bring an increased profit to the American manufacturer. When confidence is restored such a plan can be put in operation and would eventually prove more satisfactory to the entire trade.

COPENHAGEN.

EXTENSIVE PURCHASES ABROAD OF SEED AND OIL PRODUCTS.

Consul-General F. R. Mowrer, of Copenhagen, writing under date of December 31, 1907, advises that cotton-seed oil and cotton-seed oil products, such as compound lard, are used to a considerable extent in the oleomargarine industry in Denmark, his trade details following:

About 2,000,000 pund (2,200,500 pounds) of compound lard and 1,000,000 pund (1,102,500 pounds) of cotton-seed oil are used here annually. The greater part of the cotton-seed oil used is what is known as the finest quality of "butter oil," and the compound lard used is also of the best quality. Cotton-seed oil is used in the manufacture of margarine to give it the proper consistency.

Peanut oil and sesame oil (Sesamum indicum) are also used for this purpose, which, however, are as a rule much dearer than cotton-seed oil. About 1,000,000 pund (1,102,500 pounds) of sesame oil are used annually.

USE OF OILS AND CUSTOMS DUTY.

During the last year there has been a decrease in the use of cotton-seed oil, as the oleomargarine factories have begun to use in their product a certain addition of sesame oil, about 10 per cent. This has *therefore* in a measure taken the place of cotton-seed oil.

Both peanut and sesame oils are pressed here, but a considerable quantity of both is imported, while all the cotton-seed oil hitherto imported has been exclusively of American production. There has lately been an effort made to press cotton-seed oil here, the result of which is not yet known.

As there is a duty of 4⅛ øre ($0.011) per Danish pund (1.1 pounds) on cotton-seed oil and other oils, while compound lard at the present time is free, it is said that a fine compound lard, namely, a lard made of the finest fresh stearin and best yellow butter oil in the proportion of 20 to 80, would be especially adapted for introduction here.

It is important, in seeking a market in Denmark for such a compound lard, that the raw materials used should be the best and that the manufacturers could be certain that the proportions of raw materials used would be carefully adhered to, so that there might always be a certainty of obtaining the same combination in the lard purchased for the manufacture of oleomargarine.

SEED-CAKE IMPORTS.

The importation of cotton-seed cake into Denmark during the last three years was 406,822,500 pounds in 1904, 446,512,500 pounds in 1905, and 455,332,500 pounds in 1906. There is no duty on cotton-seed cake and meal.

It is estimated that fully one-half of all the oil cake imported into Denmark consists of cotton-seed cake. The oil cake which comes in competition with cotton-seed cake is sunflower-seed cake, rape-seed cake, and flaxseed cake. Importations of sunflower-seed cake come mainly from Russia as well as some rape and flax seed cake.

By far the greater portion of cotton-seed cake imported comes from the United States. A very small quantity comes from Russia and a still smaller portion of so-called Bombay cotton-seed cake made from Indian seed comes here by way of Hull, England.

While the importation of cotton-seed cake has been steadily increasing the quality of the cake it is said has been deteriorating. The farmers here demand a light colored, crisp cake free from hulls, but they say that deliveries as a rule now show dark cake full of hulls and often as hard as stone, and that it is seldom now that cake is seen of a light color and with a minimum of hulls.

CURRENT PRICES.

During the summer of 1907 the price of cotton-seed oil was very high in this market, owing to the shortage of this product last year. The price reached 70 marks ($16.60) per 100 kilos c. i. f. Copenhagen.

About the middle of December the price quoted from the United States is stated to have been 54 marks ($12.85) per 100 kilos (220 pounds) c. i. f. Copenhagen. At that time dealers here could only offer from 48 to 50 marks ($11.42–$11.90) per 100 kilos. The variation in price is explained by the stocks on hand being sufficient for present requirements. The demand for cotton-seed oil has been much influenced during the last two years by a law which requires the use of at least 10 per cent of sesame oil in the manufacture of oleomargarine. Under present conditions, it is stated there is no active market for cotton-seed oil at price above 48 to 50 marks ($11.42–$11.90) per 100 kilos c. i. f. Copenhagen.

NORWAY.

BERGEN.

DIRECT TRADE ADVISED IN COTTON-SEED PRODUCTS AND LARD.

Consul F. S. S. Johnson, of Bergen, calls attention to the indirect sales of cotton-seed oil and neutral and compound lard from America to factories at that Norwegian city by European commission houses, suggesting the doing away of the middleman and of transacting business direct with the local importers. He writes:

For the purpose of bringing exporters and manufacturers of the United States into direct communication with consumers of certain articles employed in the making of butterine, I attach the names of the factories at Bergen using cotton-seed oil, neutral lard, and lard compound. Orders for these goods are now made through European commission houses whose charges for making sales are added to the cost of these goods.

Recently 1,200 barrels of fine cotton-seed oil, also a like quantity of neutral and compound lards, were landed at this port. A market has thus been created at Bergen for these goods and the demand is on the increase. There is no reason for the employment of a middleman when business could be done direct with the consumers and orders sent direct to our manufacturers and exporters. The names of the factories at Bergen are: Smørfabriken Bjørgvin; Smørfabriken Flora af 1903; Smørfabriken Fram; Smørfabriken Hardanger; Smørfabriken Idun; Smørfabriken Orion; Smørfabriken Record; Smørfabriken Viking; Smørfabriken Ørnen.

In view of the great demand and use of cotton seed and oleo oils at Bergen, I would suggest that it would be well for manufacturers of the products named to have a local agent, one conversant wth prices, discounts, languages, etc., not only to receive orders, but to look up new business. I would suggest a young man of Bergen, highly recommended by business and banking firms of this city, as a person well qualified to look after the interests of our cotton seed and oleo oil men at this important seaport of Norway. [The name of the young man may be obtained by manufacturers from the Bureau of Manufactures.]

GERMANY.

CHEMNITZ.

SUGGESTIONS FOR INCREASING SALES OF AMERICAN COTTON-SEED MEAL.

Consul Thomas H. Norton, of Chemnitz, under date of April 24, 1907, furnishes a very full report on the consumption of oleaginous products in Saxony, as follows:

Cotton-seed meal is largely used in Saxony as a food for cattle. It is never imported for use as a fertilizer, but occasionally a spoiled

lot is sold for this purpose. Its value as fodder is generally recognized, and in the case of milch cows it is regarded as of a distinct value in increasing the yield of milk. It is considered unwise to feed it in too large amounts to cattle, and especially to draft animals.

Following is the practice in Saxony with regard to the use of oil-cake meals for domestic animals: Horses should not be fed with cotton-seed meal, but occasionally may be given rations of linseed meal as a prophylactic against constipation. Milch cows should not receive over 1 kilo (2.2 pounds) of cotton-seed or similar meals. Poppy-seed meal is strictly excluded from their dietary. Calves are given, by preference, linseed meal, while rape-seed meal is not permitted. When being fattened, cattle are allowed 2½ to 3½ kilos of oil-cake meals daily. Sheep, when being fattened, receive two-fifths of a pound of meal daily for 100 pounds of live weight. Ewes with lambs receive half of this amount. Corn is regarded as distinctly preferable to oil-cake meals for fattening swine. As a fodder oil-cake meal competes with corn and its residuary products in certain manufacturing industries; with distillery and brewing residues; with peanut meal, sesame meal, linseed cake, rape-seed cake, and rice cake, all high-priced articles.

In the Kingdom of Saxony there is an annual sale of about 7,500 long tons of cotton-seed meal, all of American origin, and all purchased by local jobbing houses of Hamburg dealers.

FLUCTUATION IN PRICES.

The grade of the American meal most favored here, and the one chiefly imported, is the double-sieved, bolted meal, containing 56 to 60 per cent fats and protein. It arrives in original packages, bags containing 165.3 pounds. The prices here fluctuate rapidly, and are apparently the direct reflex of American quotations. Local quotations vary this spring from 14 to 16 marks per 100 kilos ($33.30 to $38.10 per long ton). The prices per long ton, c. i. f. Hamburg, quoted to local jobbers, have been, this year: January, $35.22; February, $33.30; March, $31.42. The annual sales in Saxony (and probably elsewhere) are affected by prevalent quotations and also, to some extent, by current agricultural conditions. Thus the potato crop of 1906 here was exceptionally good. As a result there was a distinct falling off in the demand for meal.

SALE OF COTTON MEAL MAY BE INCREASED.

Those largely engaged in the trade think that there is a slight, but still evident, increase in the average demand for cotton-seed meal. The question of increasing this sale is of prime importance, and I have carefully sought the opinion of leading jobbers. One said: "The sale is destined to diminish on account of the wretched quality of much of the stuff which is sent over and which has no right to the name of cotton-seed meal." Another gave me the following carefully prepared statement:

> Many of our customers are not satisfied with the American meal, although we supply them with the double-sieved and carefully cleaned grade, but claim that the article prepared in German mills is of better quality and that it is far better packed. The so-called "German meal" is simply American cotton-seed

cake ground in German mills, or American meal submitted to renewed sieving and cleansing in Germany. The Hamburg firms which sell this grade guarantee no higher percentage of fat and protein than is contained in the best grades of American meal, but they charge $1.20 to $1.44 more per ton, and they get this higher price.

We are convinced that it ought to be possible for the American mills to so improve their grinding processes and subsequent treatment that a finer and cleaner meal can be produced. A better quality of sacks should be employed, and more attention should be paid to details of packing. The result would be to render the existence of cotton-seed mills at Hamburg totally unnecessary.

Recently we encountered a new difficulty in the trade. We purchase under the customary American conditions, guaranteeing 99 per cent of the weight on landing in Hamburg. No deduction is made when loss of weight does not exceed 1 per cent. Formerly there was little or no loss by weight. Evidently the full weight was shipped. Of late years there is almost invariably a lack of at least 1 per cent in weight on arrival at Hamburg. We are forced to the conviction that there is intentional underweighing on the part of the American shippers. We jobbers are forced to guarantee full weight. A change of practice in this connection would bring about an increase of confidence.

Another point: The meal is chiefly bought in the winter months. Ordinarily shipments begin to arrive at Hamburg early in December. We are then forced to transport it to Saxony by rail at greater expense than if we could use water transportation during the autumn months. There would be, hence, a distinct advantage if shipments of the new crop could arrive in Hamburg the beginning of October and not later than the middle of November.

The above criticisms in regard to packing, deficient weight, and preparation for the foreign market are all worthy of careful consideration by American manufacturers and dealers. The question of altering the season for shipments is somewhat different. The maximum effect in increasing transportation charges is, of course, felt most severely in Saxony and the other sections far remote from seaports. In other parts of the Empire it assumes less importance. It is naturally scarcely possible to count upon receiving shipments of meal in Hamburg at the beginning of October for products of the cotton crop of the current year.

RESIDUAL FEEDSTUFFS.

With regard to the different residual fodder stuffs, I have collected the following data, which apply chiefly to Saxony:

Corn distillery residues.—This is imported chiefly from the United States and its use is widespread here. The increase in price of late years has affected somewhat the local sale. The present quotations are 132 marks per metrical ton ($32.05 per long ton) in carloads at Saxon railroad stations.

American corn itself is now quoted at 144 to 148 marks ($34.27 to $35.22) at the same stations, and occasionally the price is even below that of the corn residues. Five years ago quotations were from $5 to $7.50 less than now. As a result, a certain amount of spent grain from French distilleries is now brought into Germany. This so-called aromatic corn residue is imported chiefly by a firm of Rouen. It sells from $2.50 to $3 less per ton than the American product, but is distinctly inferior in nutritive value.

Beer residues.—The spent grain of breweries is now imported in large quantities, chiefly from the United States, and gives general satisfaction. The price is $23.80 per long ton, c. i. f. Hamburg. Saxony purchases annually from 35,000 to 50,000 tons.

Rape-seed cake.—Germany covers most of her own demand, although there is a small import from Russia. The present local price of this cake in quantities is $36.35 per long ton.

Linseed cake.—This comes chiefly from the oil mills of Bremen and Hamburg, although a respectable amount is imported from Bohemia. The cake costs $33.98 per long ton at the chief railroad stations of Saxony. The meal costs $1.29 more per ton.

Rice meal.—The few farmers using this meal import it from the rice works of Aussig, in Bohemia. Occasionally small lots from Rangoon are sold. This latter is quoted at $23.05 per long ton. The Bohemian product is a much better grade, and is quoted in Saxony from $25.45 to $29.13 per long ton.

ADVANTAGES OF PEANUT MEAL.

Peanut meal and sesame meal are handled rarely as materials for cattle fodder. Attention is being directed in Germany to the manifest advantages of peanut meal as a regular comestible. It is a well-known fact that for a long time it has been a staple article in the dietary of the poor classes in Spain. The large amount of protein present—41.3 per cent—is double that contained in cotton-seed meal and about 33 per cent in excess of the protein in the meals from rape seed, colza oil, sesame oil, poppy oil, cocoanut, and palm nut, as well as of such foods as beans, lentils, and peas. Skim-milk cheese is, in fact, the only ordinary article of diet comparable to peanut meal in its percentage of nitrogenous matter. Bread made from pure peanut meal is light and porous, but it is not palatable on account of a persistent, poppy-like taste.

Recent experiments have shown that rye bread containing 25 per cent of peanut meal is scarcely distinguishable in taste from ordinary rye bread, while far more nutritious. The pure peanut meal can be advantageously employed for biscuits and crackers, as the addition of sugar and spices conceals the poppy taste. When dried and roasted, it furnishes an admirable material for soups, tasting much like ordinary bean soup. Rolls of the following composition: Wheat flour, 120 parts; peanut meal, 40 parts; sugar, 12 parts; salt, 1 part; water, 50 parts, are strongly recommended as exceedingly easy of digestion. There is probably as good a field for the efforts to build up a market in Europe for the American peanut as for the endeavors to create a demand for cotton-seed oil. At present peanut meal and peanut oil come almost exclusively from Marseille, which is the chief center of the European peanut trade and of the industrial treatment of this interesting product.

As far as can be ascertained, there is no sale of cotton linters in the markets of Saxony.

CONSUMPTION OF COTTON-SEED OIL.

Considerable quantities of the coarser grades of cotton-seed oil are consumed here in the manufacture of soap. The soap factories of Saxony and Thuringia are eighty in number. Their managers are well informed on all points concerning the raw material required in

their works. Prices and specific adaptation to special needs are the only factors entering into consideration, and probably no additional effort would materially affect the consumption of American cotton-seed oil in German soap establishments.

While but little missionary work can be done in behalf of the coarser grades, the case is quite different with the use of the cotton-seed oil as a comestible. Here there is a field for intelligent, foresighted effort, essentially similar to that so successfully employed in winning a European market for our maize products.

Practically no cotton-seed oil is now sold as such in Saxony for table purposes. Some years ago the oil was imported to quite an extent for adulterating animal fats. The rigid food laws of Germany have, however, put a complete stop to all such underhand operations. There is a somewhat limited permissible use of cotton-seed oil in the manufacture of oleomargarine. Ten per cent of the oil is added to the animal fats customarily employed. An oleomargarine factory in Chemnitz uses for this purpose about 20 tons annually.

COMPETITIVE EDIBLE OILS.

The edible fats in Germany with which purified cotton-seed oil would come in competition, apart from the ordinary preparations of butter, lard, etc., are the following:

Olive oil.—Saxony consumes about 250 long tons annually of edible oil. The consumption of the whole Empire is about 1,800 tons. In addition there is a consumption of about 4,500 tons of cheaper grades, denatured for industrial purposes by the addition of walrus oil, or by oil of cloves. Italy supplies over one-half of the total import. Three-eighths come from Turkey, and the remainder from France. The price of the different grades range from 110 to 150 marks per 100 kilos ($12.87 to $16.19 per 220 pounds). The chemists of the Chemnitz municipal laboratory, where there is a very careful control over all food products, assure me that they never detect an adulteration with cotton-seed oil.

Poppy-seed oil.—There is a widespread use of this oil for table purposes, especially among the poorer classes. The annual consumption in Saxony is estimated at 150 tons. The current prices are 76 to 78 marks per 100 kilos ($8.20 to $8.42 per 220 pounds). This oil is manufactured chiefly in the region about Magdeburg.

Peanut oil.—This is likewise a favorite for table use, and the consumption is about the same as that of the preceding oil. When of French origin, it is frequently sold under the trade designation of "Florida oil." The prices for various grades are 70 to 100 marks per 100 kilos ($7.55 to $10.80 per 220 pounds).

Sesame oil.—The consumption is about equal to that of the two preceding oils combined. The prices range from 70 to 90 marks per 100 kilos ($7.55 to $9.72 per 220 pounds).

A syndicate of German oil mills, five in number, with headquarters at Mannheim, is engaged in the expression of these three oils, producing about 100 tons per day. They furnish the major portion of the vegetable-seed oils required for the German table, although there is quite an importation of peanut oil from Marseille, in France, where the extraction is carried out on an enormous scale, yielding about

80,000 long tons annually. The crude material comes chiefly from the French colonies in equatorial Africa.

Cocoanut oil.—A comparatively small amount is used in Saxony as a food product—about 5 tons annually. Large quantities are imported for use in soap manufacture.

Linseed oil.—This is extensively used as a food by the poor in Hungary, Poland, Russia, and other parts of eastern Europe. The demand for table purposes is exceedingly limited in Germany, although I am assured that it is regularly consumed by a small number in this region, and that the use is slowly extending. It is possibly due to the great influx of foreign labor of later years, largely of Polish origin.

Oleomargarine.—The consumption is steadily growing, and the manufacture is now an important German industry. There are two large factories in Saxony and several in other parts of the Empire. Chemnitz receives daily from 10 to 15 tons to cover the demand in the city and in the tributary region. The current quotations are very variable, depending on the quality. They vary from $7.55 to $12.95 per 220 pounds.

Cottolene.—No attempt has been made to introduce cottolene in Saxony, and the article seems scarcely known by local jobbers in fats and oils.

Germany imports annually oils and oil cake to the value of about $16,000,000 and exports about one-third of this amount. No discrimination is shown on the part of the Government against the use of cotton-seed oil, other than the watchfulness against use for falsification and the somewhat elevated tariff rates.

TIME FOR PUSHING COTTON PRODUCTS.

With regard to the best methods for introducing into this region the use of cotton-seed oil as a comestible, probably no better form of campaign could be adopted than that organized by the enterprising representatives of such food products as corn meal, oatmeal, and the like. Energetic, well-equipped agents must be prepared to do a good deal of general missionary work. They will find less general prejudice against such an article as cotton-seed oil than is the case now in America. There it is necessary to displace the sale of the relatively expensive olive oil and animal fats. There is already a widespread use of various vegetable oils for salads and for cooking purposes, where the American housekeeper prefers the costly butter. The factor of price will largely determine the result as far as competition with the current vegetable oils is concerned. There is much less prejudice, for example, against the use of margarine in the average German household than is the case in an American family of corresponding social rank.

The time is propitious now for pushing the use of cotton by-products. Germany is intensely interested in the establishment and development of cotton culture in her own African colonies. While it will be many years before she can hope to cover her own demand for the fiber from the plantations of her colonial possessions, she is in an exceedingly receptive frame of mind for all suggestions connected with the industrial and economic utilization of every product of the

cotton plant as bearing directly upon the problem to which she is now devoting not only careful planning, but considerable money outlay.

USE OF COTTON-SEED OIL IN ORIENTAL LANDS.

Apart from the consideration of the future for cotton products in Germany, I am tempted to allude to the very pronounced field for cotton-seed oil among the peoples of western Asia and eastern Europe. The peculiar adaptation of this oil to the needs of the Moslem and Jewish populations, resultant from their aversion to all swine fats, has frequently been noted, as well as the natural predisposition on the part of the Hindoo to vegetable oils.

It is worthy of note that the adherents of the various Oriental Christian churches, notably of the Greek and Armenian rites, dispense entirely with all fats of animal origin during their Lenten and other fasts. During a residence in the interior of Turkey I was interested to note how complete was the stagnation in the market for such articles when Lent came around. Sesame oil, linseed oil, and poppy-seed oil completely superseded butter, lard, suet, tallow, margarine, etc. As the adherents of these Oriental churches number over 100,000,000 and their fasts are much more frequent than in the Roman Catholic Church, the economic desirability of studying the needs of this large fraction of the human race assumes a very distinct importance.

HAMBURG.

DECREASED STOCKS OF AND LOW PRICES FOR COTTON-SEED OIL.

Consul-General Hugh Pitcairn, of Hamburg, in response to inquiries from the United States in regard to market conditions in Germany affecting cotton-seed products transmits the following letter, dated December 23, 1907, from one of the leading importing houses of Hamburg:

The stocks of cotton-seed oil in the north of Europe, and particularly in Germany, are lighter than they have ever been before at this time of the year to our knowledge, which covers a period of nearly fifteen years, in which we have been dealing regularly in the article. The stocks of other seed oils competing with cotton oil have likewise decreased to an exceptionally low level, so that the low prices, to which cotton-seed oil has reacted in the course of the last two months is certainly not the result of overbearing stocks in the hands of consumers. Stocks in the United States being also exceptionally light, the statistical position of the oil market should be exceptionally strong, and if this is not the case the reasons are to be sought for in circumstances independent of statistical figures.

The Interstate Cotton-Seed Crushers' Association complains of the present low prices of cotton-seed oil, but we can not agree with them in the statement that these prices are really low. For several years, up to the fall of 1905, the value of choice edible cotton-seed oil moved on a basis between about 35 and 38 marks per 100 kilos c. i. f. Hamburg, when it commenced to rise gradually into the forties and remained between 43 and 46 marks until the spring of 1906 (mark=23.8 cents; 1 kilo=2.2 pounds). After that the value jumped into the middle of the fifties and continued to rule at about 56 marks per 100 kilos c. i. f. Hamburg all through the crop, whereas the oil of the new crop, October–December, 1906, was sold ahead at 7 to 8 marks lower. In the

year 1907 the course of the market was almost continually tending upward until as much as 73 to 75 marks had to be paid for available edible cotton oil during the latter months of the crop. In comparison with these prices the present value might be justly called low, but this is not the case, if the value is compared with that ruling formerly, and if it is considered that since prices exceeded about 55 marks every consumer regarded them as being excessive, and while being compelled to follow the market in its further advance, restricted to the most urgent requirements only.

The largest consumers of cotton-seed oil in this country are the margarine manufacturers. It is a notorious fact that the business in artificial butter (oleomargarine) in this country has not made any headway in 1907, which, we believe, is a direct result of the high cost of cotton-seed oil. Owing to the scarcity and high value of the latter, churners have resorted to experiments which greatly hurt the butterine consumption and increased the popularity of another product, namely, cocoanut butter, which in many sections of the country has almost entirely replaced butterine so far as the large requirements of bakers and confectioners are concerned.

CAUSES FOR DECLINE IN PRICES—GENERAL COMMERCIAL CONDITIONS.

The Interstate Cotton-Seed Crushers' Association states that crude oil from September to November, 1907, declined about 23 cents per gallon, which is equal to 28 marks per 100 kilos, and almost exactly corresponds to the decline in refined choice edible oil, which sunk from about 75 marks in September to 47–48 marks in November. Part of this decline we consider due to the untoward financial conditions rising up just at that time, in so far as the decline has proceeded at a faster rate probably than would have been the case under normal conditions. In fact, the market since November 19 has recovered about 8 marks per 100 kilos, or 7 cents per gallon for refined oil, but it is our opinion that this recovery will gradually be lost again and that the market for edible cotton oil for the season 1907-8 will settle on a basis around 50 marks per 100 kilos, fully warranting the decline of 23 cents per gallon on crude oil.

The conditions of industry and commerce in this country are decidedly more unfavorable than they were during the last few years. Everything points to a period of retrenchment and consequently lower standards of values for the necessities of life by the masses. Extreme prices for cotton oil, like those we have experienced when crude oil was worth 20 cents per gallon more than it is now, are bound to curtail the demand for artificial butter, of which the article in question is one of the principal ingredients, and we therefore believe the sooner American producers of cotton-seed products realize that they have to figure with the present level of value, or even a still lower one, in the current season, the better will it be for their own interests.

ANNUAL CONSUMPTION IN THE EMPIRE—PRICES AND SUPPLIES.

Vice-Consul-General E. H. L. Mummenhoff, of Hamburg, states that cotton-seed oil, meal, and cake are used in large quantities in that consular district, as approximately 250,000 to 280,000 tons thereof are annually imported into Germany, of which large quantities pass through that port on the way to the inland consumers. Writing under date of September 20, 1907, he says:

The imports into Hamburg of cotton-seed oil increased during the four years from 1901 to 1905 from 15,700 to 18,400 tons, whereas those of cotton-seed cake decreased from 176,000 to 148,000 tons. During the same period the imports of other oil cake increased from 97,000 to 119,000 tons. During the year 1905 the imports of cocoanut oil, which amounted to 4,300 tons in 1901, represented a quantity of approximately 6,700 tons. The imports of linseed oil increased in a similar proportion, whereas olive oil, the imports of which amounted to 4,000 tons in 1901 and rose to 6,300 tons in the year 1902, was

imported to the amount of 3,900 tons only in the year 1905. Palm and palm-kernel oil also decreased in their imports, namely, from 16,100 to 12,600 tons.

Cotton-seed oil, particularly those kinds generally known as "prime summer yellow oil," "choice summer yellow butter oil," and "choice butter oil," is chiefly used for the manufacture of margarine. For soap manufacture "summer yellow oil" and "off summer yellow oil" are chiefly consumed, whereas "choice summer white oil" is in demand for the manufacture of compound lard. Oil is also consumed for household purposes, in the shape of salad oil, and the kinds imported therefor are "prime and extra winter yellow oil" and "choice winter white oil." Cotton-seed cake and meal are both largely used as cattle feed.

FLUCTUATION IN PRICES OF COTTON-SEED PRODUCTS.

The prices for cotton-seed oil had to undergo the following fluctuations on 220 pounds during 1906 and 1907: Butter oil in 1906 $11.19 to $14.28, and in 1907 $14.28 to $18.33; off oil in 1906 $10.23 to $11.90, and in 1907 $11.90 to $16.66. Prices for New Orleans cotton-seed meal increased during the year 1906 from $32.13 to $33.80 per ton of 2,240 pounds. For Texas cotton-seed meal prices also advanced considerably, namely, from $33.80 to $34.27, and later to $35.22. For bolted Texas meal prices dropped from $35.46 to $34.51, but thereupon, the market showing an upward tendency, rose to $36.18 per ton.

Cotton-seed linters are also largely consumed in Germany, namely, for spinning purposes and for the manufacture of explosives. This article is handled in various grades, viz, low, ordinary, middling, good, and fair. The aggregate sales per annum amount from 80,000 to 100,000 bales, representing a value of approximately $1,500,000 to $2,000,000. Linters, in order to be used for the manufacture of explosives, must be cleaned in Germany. Prices for this article fluctuate between $3.10 and $5.90 per 110 pounds c. i. f. Hamburg, shipped in bales of 200 to 250 kilograms.

OILS IN THE HAMBURG MARKET.

In this market cotton-seed oil comes chiefly in competition with sesame and ground-nut oil, but only if the market is high, although ground-nut oil, cocoanut oil, palm oil, and olive oil are regularly imported into Hamburg; all these kinds of oil, however, are used for special purposes, in which they do not come in competition with the cotton-seed product. As feedstuffs cotton-seed cake and meal come in competition here with ground-nut linseed, and sesame cake and meal, but not with such products as rice meal, distillers' dried grains, rye grains, etc.

In all feedstuffs the imports have in recent years steadily increased in quantity, as the continental European consumption steadily becomes larger. In the year 1905 the imports into Germany of feedstuffs amounted to approximately 585,000 tons, of which 205,000 tons came from the United States. In the year 1900 these imports amounted only to 495,000 tons, the United States sending 190,000 tons, and in 1880 to 475,000 tons, only 705 tons coming from the United States.

As a chief article for the manufacture of oil and cake there is linseed to be taken into consideration. The price of linseed oil increased during the year 1906 from $9.64 per 220 pounds to $10.95; later it dropped to $9.04. During the same period prices for La Plata linseed oil advanced from $54.74 per ton to $58.31, thereupon decreasing to the lowest price level of $48.79. American prime western linseed cake fluctuated between $32.13 and $38.79 per ton.

Business in cotton-seed products is steadily increasing, and there is a favorable opportunity for American manufacturers for making new and profitable connections. [A list of importers and firms handling cotton-seed products at Hamburg is filed in the Bureau of Manufactures.]

BRESLAU.

SUPPLIES IMPORTED THROUGH HAMBURG—PRICE QUOTATIONS.

The following from Breslau district was furnished by Consul Herman L. Spahr, dated May 21, 1907:

Cotton-seed products are largely used in this district (Silesia and Posen), but separate statistics are not obtainable. The oil comes in competition mainly with linseed oil and substitutes therefor used by soap makers. The prices stand at present, per 100 kilos (220 pounds):

Cotton-seed oil (wharf Hamburg without import duty), American white, 57 marks; American yellow, 56 marks; English, 54 marks (1 mark = 24 cents).

Linseed oil (inland price f. o. b. Hamburg), 47½ marks.

Cotton-seed cake or meal has to compete with linseed, rape, cocoanut, palm kernel, and all other oil cakes and meals used as feedstuff.

The extent of the import of cotton-seed oil depends on the quotation of competing oils in the German market. While linseed oil had a comparatively low market price (38 to 42 marks) the soap makers found profit in working it, but at its present high price they prefer cotton oil, which gives a far better yield.

There is no olive oil produced in Germany. In some parts linseed oil is used as a substitute for lard, and two mills make edible poppy oil. Cocoanut oil is made and largely used as a cheap substitute for butter in cooking. Olive oil is imported from France, Italy, and Austria, and cotton-seed oil from the United States.

OPERATIONS OF LOCAL MILLS.

The only concern in Germany for crushing cotton seed is at Gross Gerau, near Bremen, and its oil is said to be of fair quality. Several other factories have tried it but with discouraging results, for the oil, cake, and meal had a bitter, rancid taste and unpleasant smell, which has been attributed to decomposition or oxidation of the seed shells while crossing the sea. The oil sent by England is inferior to the American, which is always rated from 4 to 5 marks higher per 100 kilos.

A large factory was recently built in the Russian cotton district near the river Amur-Darja, at Murgab. It is said that the new factory will export most of its oil and cake, especially to Germany. The Russian Government is subsidizing it and inducing capitalists to invest in similar undertakings.

Some agricultural journals claim to notice a gradual decrease of fat and protein in cotton-seed meal. Samples tested ten years ago by the Bonn Experiment Station are said to have shown an average of 59 per cent fat and protein, and in 1904 only 53.9 per cent. They say that this decrease comes from insufficient separation of the wool and shells from the seed. Cotton-seed meal is reported to appear on the market sometimes with the indigestible shell not at all separated. This meal is offered at a lower price than the pure, but it is claimed that the difference in price does not compare with the difference in value, although fresh meal, not too much adulterated with wool and shells, is not injurious to animals.

MAGDEBURG.

LARGE CONSUMPTION OF COTTON MEAL—COMPETING ARTICLES.

Under date of May 20, 1907, Consul Frank S. Hannah furnished the following report:

Cotton-seed oil is not used to any extent in this district. In the manufacture of soap, however, large quantities of oleine, a product of the candle manufacturers in America, whose composition is unknown here, were used until the present tariff law went into effect, which has advanced the duty by new classifications from 3 marks to 10 marks (71 cents to $2.38) per 220 pounds. Cotton-seed oils in the pure state are used for pharmaceutical and cooking purposes, and to some extent as a substitute for olive oil.

Cotton-seed cakes are not extensively used in Germany.

Cotton-seed meal is used in Germany in large quantities and particularly in this district, where the largest factories for mixing the different grades are located. Five factories here use together over 20,000 tons annually. In this connection it might be worthy of mention that the sale of cotton-seed meal is greatly restricted by a combine of importers located in Hamburg, who are in control of the importations to such a degree that the factories here are forced to buy from them at an advanced price, which not only restricts sales but compels some of the factories to use other ingredients. No doubt beneficial results would be obtained by establishing agencies in Magdeburg, where so much of this material is required. The importation of peanut products from France, as well as rice meal from India, is handled through resident agents established here.

Other articles coming into competition with cotton-seed meal for feeding cattle are poppy cakes, cocoanut cakes, rape cakes, and palm cakes. Germany being so rich in other and cheaper fertilizers, cotton-seed products are but little used for this purpose.

Linters are not used in this district, but are imported into the *textile* districts of Saxony for cleaning purposes.

BAMBERG.

CAKE PREFERRED TO MEAL—FEAR OF ADULTERATION.

Writing from Bamberg, Germany, August 3, 1907, Consul W. Bardel reports:

Bamberg being an inland district with no important commercial centers cotton-seed products do not reach here by direct importation from the United States. While cotton-seed oil, as well as cotton-seed cake or meal, is used in every part of the district, it is impossible to ascertain the quantities consumed, most of these articles being sold to this district by merchants or brokers in Mannheim and other points along the Rhine.

Cotton-seed oil arrives in casks; the cake and meal in bags. The oil is used principally by manufacturers of soap. The price of cotton-seed oil at present is $6.48 to $6.69 per 100 pounds; of cake, $1.76 per 100 pounds, and of cotton-seed meal, 78 cents per 100 pounds. Cotton-seed linters are not used here.

LINSEED AN ACTIVE COMPETITOR.

Linseed oil is the chief competitor to cotton-seed oil. Linseed oil sells at present from $7.25 to $7.75 per 100 pounds, and therefore cotton-seed oil is, for the time being, preferred by the soap manufacturers. Cotton-seed cake and meal also come in competition with linseed cake or meal. They are used for feedstuff principally.

As long as linseed oil or cake are more expensive than cotton-seed oil or cake, the latter will be preferred. It is claimed that only olive oil is used as an edible oil in this district. There is no discrimination against cotton-seed oil as an edible.

I am informed that cotton-seed meal is generally objected to by the farmers for the reason that they are afraid the meal is adulterated, and even at the big difference in the price they prefer to buy the cake and break it into meal themselves for feeding stock.

EIBENSTOCK.

POSSIBLE MARKET FOR COTTON-SEED MEAL IN SAXONY.

Consul William C. Teichmann, in the following report from Eibenstock, tells of an opening that has developed in Saxony for American cotton-seed meal for stock feeding:

Agricultural conditions heretofore prevailing in this German district did not appear favorable to the sale of American cotton-seed products. The mountainous character of this section of Saxony hinders its agricultural development, which is confined to cultivation of rye, oats, and potatoes wherever possible, and to limited truck gardening, although even these cereals and vegetables are insufficiently raised to supply the demand. Cattle raising and dairying are only carried on to a very limited degree and by primitive and economical

methods. For cattle feed poppy, cocoanut, rape, and palm cakes are used to some extent wherever the ordinary local agricultural farm supplies do not suffice.

No cotton-seed products have thus far been introduced in this district, and the only American cattle-food articles sold here are "Maizena Food," a corn product which has gained considerable foothold, and American corn bran, which is much favored and finds a good market here. Agencies in Hamburg and Magdeburg principally supply this demand. The poor crops of last year have raised the price of cattle food materially, so as to render it worth while to look over this district for the sale of cotton-seed oil cake and meal. I believe that communications opened with the principal dealer in cattle food in Eibenstock [name filed at Bureau of Manufactures] would lead to practical results, as cattle-food supplies must now be augmented by importations.

WEIMAR.

COMPETING ARTICLES—IMPORTATIONS INCREASING.

Consul W. L. Lowrie, of Weimar, under date of April 24, 1907, reports that cotton-seed oil is not used in that part of Germany. He writes:

Cotton-seed cake is used to some extent as food for cattle, but it does not appear to have an extensive sale. Cotton-seed meal is used extensively as food for cattle, and is handled in bags of from 150 to 200 pounds. The consumption of this article in the Grand Duchy of Saxe-Weimar amounts to from 900 to 1,100 carloads a year. Its value is estimated at from $261,800 to $309,400. Conforming to the general advance of prices in Germany, the meal commands a higher price now than in previous years.

As food, the articles in competition with cotton-seed oil are olive oil, peanut oil, poppy oil, and tallow. In Italy and France cotton-seed oil is mixed with olive and other oils, the higher grades being for table use and the lower for the manufacture of soap. For technical purposes the principal competitors are linseed, rape, and bone oils. In the manufacture of soap cotton-seed oil comes into competition with palm kernel oil.

The competitors of cotton-seed oil cake as food are linseed oil cake, poppy oil cake, and sesame cake. No figures are obtainable as to the quantity used in the district. Peanut, palm kernel, and cocoanut meal are the principal competitors of cotton-seed meal. The use of the latter has increased extensively during recent years, especially in the dairy districts, where it is in favor as a food for cows. A merchant in Weimar states that the imports of cotton-seed products, especially oil, are increasing. The cause is the general rise in prices of linseed, rape seed, and palm kernel oil, which has been from 8 to 10 per cent since last year.

BREMEN.

PRESENT PRICES AND STOCKS ON HAND—USES AND AMOUNT CONSUMED.

Consul William Thomas Fee, writing from Bremen, January 17, 1908, on the trade in cotton-seed products, says:

According to information received from competent business men and a brief report from the chamber of commerce at Bremen, the prices of cotton-seed oil and its chief by-product, cotton-seed meal, during the past calendar year were above the average, owing to the high prices of other oil and foodstuffs.

Cotton-seed oil in Bremen is used chiefly for manufacturing purposes. Some 12,000 to 15,000 barrels of a low grade cotton-seed oil were consumed during the past year in soap making. The price paid for this grade varied from 51 to 52 marks ($12.14 to $12.38) per 100 kilos (kilo 2.2 pounds), c. i. f. Bremen. About four months ago the price for this article went up to 55 to 56 marks per 100 kilos, and then, owing to a decline of prices of other oils, especially tallow, it came down to 46 marks ($10.95).

Cotton-seed oil for the manufacture of food products is imported chiefly at Rotterdam and Hamburg, and very little of this article comes to Bremen.

As to cotton-seed meal, there are on hand here at present about 2,000 metric tons. The sifted meal is sold at 152 marks ($36.18) per metric ton (2,204.6 pounds), which is considered to be a trifle above average price.

AUSTRIA.

VIENNA.

NEW DEMAND FOR COTTON-SEED OIL.

Consul-General W. A. Rublee advises that a project for the manufacture of artificial butter on a large scale in Vienna, one of the principal ingredients of which is to be cotton-seed oil, promises to create a considerable market for American cotton-seed oil in Austria. His report, dated January 23, 1908, continues:

A company has already been formed to manufacture this new product, which is to be made according to a process recently patented by an Austrian inventor. The possibilities of the trade in this article are considered very great, as it is proposed to put it on the market not only in Austria-Hungary but in Russia, Roumania, and Turkey as well, in which countries the sale of such a substitute for butter is expected to be very large. The orthodox Jews and Mohammedans do not touch any substitute for butter which contains hog fat, and it is therefore stated that the Jews of Russia and Roumania as well as the Mohammedans in Turkey will be large consumers of the artificial butter made from cotton-seed oil.

A canvass of these countries has been made in the interest of the new company and it is reported that the prospective sales of the new

product are excellent. It is the desire of the company to form connections with cotton-seed oil producers in the United States in order to obtain the necessary supplies of cotton-seed oil. The quality desired is that used in the manufacture of cottolene in the United States. It is thought that several thousand carloads will be used in Austria annually, and the lowest quotations against cash payment are asked for. Such quotations may be sent to the American consulate-general in Vienna, and will be delivered to the officers of the company that proposes to manufacture the new product. [The name of the person to whom offers can be sent was forwarded by the consul-general, and will be furnished by the Bureau of Manufactures to firms wishing to correspond direct.]

TRIESTE.

RENEWAL OF PURCHASES OF AMERICAN OIL.

Consul George M. Hotschick furnishes the following review of the market conditions for cotton-seed products at Trieste, the leading port of entry for Austria-Hungary, under date of January 14, 1908:

On March 1, 1906, when the Austrian prohibitive tariff on cotton-seed oil, by which the duty was raised from $1.93 to $8.12 per 100 kilos (220.46 pounds) came into force, the importation of cotton-seed oil into Austria became an impossibility.

For about eighteen months after the date of the enforcement of the new tariff only a few barrels of American cotton-seed oil were unloaded at Trieste, and even this small quantity did not all enter Austria, but was stored in the "Freihafen" at Trieste, and from here the greater part reshipped to the Levant. The "Freihafen," or free port, is a limited territory where goods are warehoused without paying import duty and whence they may be reshipped to other countries.

The recent low prices of cotton-seed oil in the United States enabled those Trieste merchants who were heavy buyers of this product before the Austrian prohibitive tariff came into force to become once more customers of the United States, and give orders for cotton-seed oil, because they could buy at such a low price that even the excessive tariff duty left them a margin for profit, although a small one. The low price of cotton-seed oil in the United States is the sole factor in the renewed purchase of American cotton-seed oil by the Trieste merchants. The slightest rise in the price of cotton-seed oil in the United States would at once make away with the small profit margin left to the Trieste merchants and stop the importation of this product into Austria.

CURRENT PURCHASES—OIL QUOTATIONS.

The small lots of cotton-seed oil bought since the beginning of November, 1907, are absorbed by local manufacturers as soon as they arrive at Trieste. The quantity of cotton-seed oil contracted for during the months of November and December, 1907, and to be shipped to Trieste up to about February–March, 1908, amounts to a total of about 3,500 barrels.

The prices of the different oils at Trieste, per 100 kilos net, duty paid, are (on January 14) as follows:

Olive oil:			Cocoanut oil	$15.63 to	$16.65
First quality	$17.66 to	$18.47	Cotton-seed oil:		
Lower grades	15.43 to	16.44	Home product		22.33
Sesame oil:			American product	21.52 to	23.95
First quality	22.33 to	27.61	Palmist		15.48
Lower grades	19.49 to	21.32	Linseed oil	12.28 to	13.04
Arachide (peanut) oil:					
First quality	25.68 to	26.59			
Lower grades	17.76 to	17.97			

CARLSBAD.

COTTON-SEED PRODUCTS NOT USED TO ANY EXTENT.

Consul John S. Twells, of Carlsbad, under date of May 22, 1907, furnishes the following:

Information received from the chamber of commerce and trades at Eger indicates that no cotton-seed oil is used in that district, neither for greasing purposes, the manufacturing of soaps and varnish, nor for the making of margarine. In this commercial district there are no factories making varnishes or artificial fats. Small quantities of cotton-seed cakes and meal are used by some farmers for the feeding of cattle, but as yet none is used as manure. The trade in these articles has hitherto shown no signs of development in this district, but it is reported that quantities are required in the districts of Reichenberg and Prague, in which places large soap, varnish, and artificial fat factories are located.

SWITZERLAND.

ST. GALL.

COTTON-SEED PRODUCTS ABSENT FROM SWISS STATISTICS.

Consul-General Thomas W. Peters, of St. Gall, under date of April 26, 1907, furnishes the following report:

The products of cotton seed do not appear in the Swiss statistics, and this is the more marked, as any food, of whatever nature, which exceeds in value in any one quarter of the year 2,500 francs ($493) must be published in the statistics. This omission is probably due to the fact that the quantity imported is so small that it is included under other designations. Under the heading of "other edible oils" there is mention of the importation of 470 hectoliters or 12,416 gallons. This item may include the oleaginous products of cotton seed.

Various oils, edible and otherwise, used in trade are imported and exported in Switzerland, including butter. There was imported 409,331 gallons of pure olive oil, valued at $294,526, including packing charges, making the price of the oil 72 cents per gallon. France and Italy furnished 403,044 gallons, leaving 6,287 gallons furnished by other countries.

Switzerland imported of other edible oils 719,202 gallons, valued at $436,217, making the average cost 61½ cents per gallon. Of this amount France furnished 627,271 gallons and America 12,416 gallons. It is quite possible that part of this importation was the product of cotton seed.

FRESH AND SALTED BUTTER.

There was 3,929,421 pounds of fresh butter imported in 1905, valued at $1,558,003, making the average value per pound 40 cents. During the same period Switzerland exported 43,120 pounds, valued at $11,222, making the average value of the export 26 cents per pound. The importation of salted butter amounted to 4,888,818 pounds, and was valued at $432,452, making the average value per pound, including packing, 8.9 cents. France supplied more than half of the importation, Germany came next, and from America there was received 310,640 pounds. During the same period Switzerland exported 55,000 pounds, valued at $7,368, making the average value of the export 11⅜ cents per pound.

Switzerland, according to recent statistics, required above the amount produced within her own borders oleaginous food to support her population, as follows:

Olive oil	$294,525
Edible oils	436,217
Fresh butter	1,558,003
Salted butter	432,452
	2,721,197
Reexports	**18,590**
Total	2,702,607

LINSEED OIL, FORAGE, AND FERTILIZERS.

There was imported 761,021 gallons of linseed oil, valued at $261,317. Almost the total amount of this was furnished by the Netherlands and Belgium. Of industrial oil there was imported 2,069,185 gallons, valued at $906,992, of which amount America furnished 748,578 gallons, France 548,870 gallons, and Germany 403,488 gallons. The remainder was divided in small amounts among other countries.

There was imported 80,587,540 pounds of concentrated forage, valued at $1,080,317, making the average pound value, including packing, 12.41 cents. France, Italy, and Germany furnished the great bulk; America furnished 219,780 pounds.

The importation of unprepared fertilizers of various sorts amounted to 114,971,120 pounds, and was valued at $699,137. From Germany there came 75,451,420 pounds, and from America 6,845,740.

The prepared or manufactured fertilizers are, in great part, furnished by Germany. The total import amounted to 44,133,320 pounds, valued at $346,927, Germany furnishing 34,079,100 pounds, while America is not credited with any.

There is no discrimination on the part of the Swiss Government against cotton-seed oil, but it is required that all articles shall be entered under their own name and quality. No imitation of olive oil can be sold as olive oil.

ITALY.

FLORENCE.

COTTON-SEED PRODUCTS NOT USED—LARGE CONSUMPTION OF OTHER OILS.

Writing from Florence, April 27, 1907, Consul Jerome A. Quay furnishes the following report:

Cotton-seed cake or meal is not used in this district. Cotton-seed oil is used in but a very limited quantity, more in Bologna and its dependencies than in Florence, and more for industrial than alimentary purposes.

In the city of Florence the consumption of oils in 1906 aggregated 1,772 quintals (1 quintal = 220 pounds), of which 1,502 quintals was olive oil, 238 quintals linseed oil, and 32 quintals sundry oils.

The actual market price of olive oil per quintal in Florence is: For extra quality salad oil, $23.54 to $24.12; first quality, $22.58 to $23.16; second quality, $21.23 to $22.19; and illuminating oil, $16.98 to $17.37.

Genoa and Milan control the market of cotton-seed oil. Bologna has occasional quotations, while Florence does not appear in the list.

AVERAGE PRICES.

The average prices at Bologna are given in the following table:

Kind of oil.	Price per quintal.	Kind of oil.	Price per quintal.
Extra fine olive oil	$32.01 to $32.97	Cotton-seed oil	$22.96 to $23.16
First quality olive oil	29.11 to 30.08	Sesame superfine	23.16 to 23.54
Second quality olive oil	27.02 to 27.92	Sesame fine	21.80 to 22.58
Edible olive oil	24.12 to 25.09	Linseed oil, boiled	18.14 to 18.33
Oil for burning	20.26 to 21.27	Linseed oil, raw	17.75 to 17.94
Inferior oil	18.72 to 18.91	Illuminating oil	14.66 to 15.44

Olive oil imported into Italy is subject to a duty of $1.15 per 220 pounds. Oleaginous seeds pay 21 cents per 220 pounds.

Oleaginous and nonoleaginous seeds appear conspicuously among articles of importation, but only nonoleaginous seeds are reported in the list of exportations.

Cotton-seed linters are not used in this district.

Cotton-seed oil at present does not really come in competition with any industrial or alimentary product, or substitute of olive oil.

Cotton-seed cake or meal is almost unknown both as a feedstuff or as an ingredient of commercial fertilizers.

The following table shows the importation into Italy of olive oil the past five years, the figures representing metric tons:

Country.	1902.	1903.	1904.	1905.	1906.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Austria-Hungary	556	605	380	422	188
France	1,182	2,074	2,673	4,102	675
Greece	1,645	1,383	1,087	277	291
Spain	7,731	10,252	7,058	6,059	18
Tunis	575	126	1,077	1,869	579
Turkey	108	80	157	745	560
Other countries	110	1,161	141	558	81
Total	11,907	15,681	12,573	14,032	2,392

The other oils imported into Italy during the same years were as follows:

Country.	1902.	1903.	1904.	1905.	1906.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Austria-Hungary	71	358	698	962	118
France	114	99	83	76	51
Great Britain	312	213	267	712	154
United States	2,541	3,290	3,607	10,438	2,611
Other countries	92	80	100	104	95
Total	3,130	4,040	4,665	12,292	3,029

The quantities of olive oil exported during the five years ending December 31, 1906, and the countries to which exported are given in the following table:

Country.	1902.	1903.	1904.	1905.	1906.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*
United States	10,763	9,298	11,469	9,311	16,589
Austria-Hungary	3,520	2,626	3,374	2,581	4,784
France	8,934	4,845	7,426	4,325	11,996
Germany	4,450	1,593	2,600	1,654	3,235
Great Britain	4,174	3,293	3,178	2,628	3,916
Malta	383	302	287	316	219
Netherlands	2,136	2,740	2,541	1,059	2,517
Portugal	100	137	701	4	958
Russia	2,785	2,908	3,118	3,089	2,280
Switzerland	1,632	1,235	1,518	1,260	2,011
Turkey	265	68	63	33	32
Central and South America	7,908	7,665	10,050	7,531	13,945
Other countries	4,149	1,183	1,968	1,679	3,992
Total	51,199	37,893	48,293	35,470	66,470

This district, the largest producer of pure olive oil, probably uses the least quantity of cotton-seed oil as an adulterant. Official statistics do not refer to the consumption by districts, but by ports of entry. The Italian Government uses every effort to prevent the adulteration of its high-grade oil for export.

TURIN.

IMPORTS OF COTTON-SEED OILS—EXPORTS OF MIXED OILS.

Consul Albert H. Michelson, of Turin, under date of April 29, 1907, reports that cotton-seed cake or meal is practically unknown in that consular district. He continues:

The cotton-seed oil imported into Italy during 1905 amounted to 119,798 quintals (263,556 hundredweight), and during 1906 to 27,472 quintals (60,438 hundredweight). The decrease is explained by the small yield of olive oil in 1904–5 and by the passage of the food and drugs act, June 30, 1906. In addition to the cotton-seed oil which Italy imports, it is shipped in considerable quantities to Italian seaports and mixed upon the wharves with other edible oils—olive for

the most part. The resulting compound is exported to nearly every country of Europe and the Americas.

The oils and greases with which cotton-seed oil comes into competition in Piedmont and elsewhere in Italy are olive oil, linseed oil, sesame oil, cocoanut oil, colza oil, lard, butter, and tallow.

THE VARIOUS EDIBLE OILS.

Olive oil is produced from native trees. It is also imported from Spain and Greece, notwithstanding the heavy duty, but only when the native yield is small. The production in the year 1903–4 was 86,119,420 gallons; 1904–5, 44,644,730 gallons; and in 1905–6, 81,100,190 gallons.

Linseed oil is produced from seed imported from India and South America, and also from seed grown in Sicily, Priglie, and Lombardy. The average annual importation of linseed and colza amounts to 53,836 hundredweight.

Sesame oil is produced from seed imported from India, China, and Turkey in Asia. The average annual importation of sesame seed is 330,680 hundredweight.

Cocoanut oil is produced from seed grown in Asia and Australia. The average annual importation of this seed amounts to 140,000 hundredweight.

Colza oil is produced from seed imported from India and Russia, and also from seed grown in the provinces of Piedmont and Lombardy.

Lard is imported chiefly from the United States.

Butter is produced in Italy. There is a considerable export trade.

Tallow is imported chiefly from South America, but also from the United States and Australia, and used for the manufacture of stearin and candles. Italy's imports of tallow average about 400,000 hundredweight per annum. As feedstuffs linseed, sesame, and cocoanut cakes are most used. Colza cakes furnish the chief ingredients of commercial fertilizers of this type. Cakes for feedstuffs were sold in January at $1.25 per hundredweight and those for use as fertilizers at $1.05 per hundredweight.

DUTY PREVENTS IMPORTATION.

It is believed that the duties and taxes must effectively prevent, in all but exceptional cases, the extended introduction of cotton-seed oil into Italy, and that furthermore should such an increase of trade occur, taxes notwithstanding, it could only result in the promulgation of higher rates. The production of olive oil is one of the most ancient as well as one of the most important industries in Italy, and efforts to introduce extensively any oil able to compete seriously with it must face most determined opposition.

It is still more unlikely that cotton seed can be successfully imported into Italy. Apart from the fact that the seed deteriorates in conveyance, and that the percentage of oil contained in a given weight of it is low, the seed is subject to a duty of 5 lire per quintal (44 cents per hundredweight) and to the special tax of $1.23 per hundredweight above mentioned on the oil produced from the seed.

The food and drugs act of June 30, 1906, must also be recognized as a serious obstacle in the way of an extension of trade in cotton-seed oil with Italy.

GENOA.

COTTON-SEED PRODUCTS DO NOT COMPETE WITH OTHER ARTICLES.

Consul James J. Roche, under date of June 5, 1907, reports that there is practically no cotton-seed cake or meal used in Genoa, while there is a fairly large quantity of cotton-seed oil used for mixing with olive oil. So mixed, it is reshipped under the name of olive oil to Central and South America. The consul adds:

There is very little use of cotton-seed linters in this district. The largest concern importing them, the "Cotonificio di Cornigliano Ligure," reported a year ago that it handled 100 bales annually. It is now handling 200, which are sold at from 50 to 60 lire per 100 kilos, i. e., about 4½ cents per pound, for use in making explosives.

Cotton-seed oil does not come in competition with olive, peanut, and other vegetable oils, nor with edible tallow, butter, lard, etc., partly because of the high duty, but chiefly because the people prefer the olive oil for table use. All housekeepers use it generally in place of butter, lard, and the like. Cotton-seed products do not come into competition with any article as a foodstuff or as an ingredient of commercial fertilizers.

Liguria, consisting of the provinces of Genoa and Portomaurizio, besides producing enough edible oil to supply all its inhabitants, exports largely to the United States ($195,770 worth in 1906) as well as to South America and other countries. Its annual production in a good year averages 11,764,700 gallons of olive oil. The duty on cotton-seed oil is large enough to prevent its importation for consumption except in case of a small olive crop here. Apart from that there is a decided preference on the part of the people themselves for their native olive oil above anything else of the sort.

COTTON-SEED OIL MIXED WITH OLIVE OIL.

Cotton-seed oil imported here is used for mixing with olive oil, as heretofore stated. The mixing is done in bonded warehouses, where the oil remains without paying duty until the process is completed, when the whole product is exported under the name of olive oil.

Taking the average value of cotton-seed oil imported here, which the Genoese Chamber of Commerce gives as 60 lire per 100 kilos, the price per pound would be 5.45 cents. This, added to the duty of 4.55 cents, would make a total of 10 cents per pound. The current prices of pure olive oil in Genoa are, per quintal of 100 kilos, or 220 pounds: Extra quality, 150 lire; fine first quality, 135 lire; fine second quality, 120 lire; and edible good, 100 lire (lire=19.3 cents).

From this it will be seen that the poorest quality of pure olive oil sells for 9.09 cents, against 10 cents for cotton-seed oil. A grade

between the "edible good" and the "fine second quality" sells at 115 lire, which would be about the price of cotton-seed oil, with duty added to cost.

CATANIA.

POOR MARKET FOR AMERICAN COTTON-SEED PRODUCTS.

The following report was furnished by Vice and Deputy Consul-General Jacob Ritter, of Catania, under date of May 29, 1907:

There is no importation or use of cotton-seed oil and cotton-seed cake or meal in this district. If imported, cotton-seed oil would come in competition with the native olive oil, with butter, and with American lard oil.

The consumption during 1906 of edible olive oil in Catania was about 3,000,000 pounds, valued at $450,000, and that of American lard about 380,000 pounds, valued at $67,000. No returns exist for the inland towns, but the consumption of olive oil is large, and American lard is in good demand and is appreciated.

When the home production of olive oil falls short, the deficiency is made up in this district by importations from Spain, Tunis, and Greece. Considering the large home production of olive oil, it is not likely this district will become a market for cotton-seed oil.

SPAIN.

MALAGA.

DISCRIMINATION AGAINST COTTON-SEED OIL.

Consul D. R. Birch writes from Malaga, under date of April 26, 1907, that cotton-seed products are not imported into Malaga in any form. He continues:

Olive oil of a low grade, not considered by Americans as fit for edible purposes, but exported in large quantities from Malaga to the United States for mechanical and industrial uses, would be the only oil or grease to come into competition with American cotton-seed oil if the latter were imported.

The importation of cotton-seed oil is, however, legislated against by the Spanish law of July 5, 1892, which makes it mandatory upon the several collectors of customs to mix 1½ per cent of tar or petroleum with every barrel or bottle of cotton-seed oil imported into Spain. This regulation, which was passed at the behest of the Spanish olive growers, has had the effect of putting an effectual stoppage to the importation of cotton-seed oil. The small quantity of oil produced in this section was sold retail to local consumers during the past three months at about $3.25 United States gold per arroba (3.3185 gallons). In years when olive oil is plentiful

the retail rate is one-third less. The above price includes the payment of 3.50 pesetas, which is levied on each arroba of olive oil entering the city limits. The peseta is now worth 17 cents. When the olive-oil production of Spain is small, importations are usually made from Italy. The Spanish duty on Italian oil is 40 pesetas per 100 kilos (28.8 American gallons), which is subject to the additional foodstuff tax of 3.50 pesetas per arroba.

RUSSIA.

VLADIVOSTOK.

LARD COMPOUND AND COTTON MEAL—PRICES OF EDIBLE OILS.

The following report was furnished by Consul Roger S. Greene, of Vladivostok, under date of April 3, 1907:

Unmixed cotton-seed oil, as such, is not known on this market. Lard compounds, made of cotton-seed oil and suet, have, however, been introduced, and while the exact quantity sold or imported can not be stated, it is estimated at about 600,000 pounds for the past year. The greater part of this is purchased eventually for the army. The average price here is 7 rubles per pood, or 10 cents a pound, in large quantities.

Cotton-seed linters are not imported into Vladivostok and their use is not known here.

Edible oils now on the market with which cotton-seed oil would have to compete, their current prices, and the quantity imported are as follows per English pound, when sold by the pood (36 pounds):

Olive oil, first quality, 43 cents; second quality, 37 cents; so-called low grade olive oil, nonedible, for burning, 18 cents; sunflower-seed oil, 17 cents; nut oil (various nuts), 14 to 22 cents; hemp-seed oil, 10 cents; bean oil, 9 cents.

The total quantity of vegetable oils imported in 1906 was 1,997,648 pounds. Of these oils 1,266,153 pounds came from foreign countries, the remainder by sea from Russia. The bean oil is of poor quality, and is mostly imported from China.

Other products that would compete with cotton-seed oil are butter, a good grade of which, produced in Siberia, may be bought in bulk at about 22 cents per pound, and lower grades sometimes as cheap as 18 cents. Margarine sells at 19 cents per pound, American lard at 13½ cents, Chinese lard, very crude, at 7 cents, and edible tallow at about the same. The amount of butter imported in 1906 is stated at 1,083,766 pounds, and of other animal fatty products at 861,413 pounds. Probably an equal, if not greater, amount of butter is produced locally or brought in from other parts of Siberia by rail. Particulars as to the annual quantity and value of the sales of each are not obtainable.

MARKET FOR COTTON-SEED CAKES.

Cotton-seed cake as a feed for cattle, etc., would have to compete, among other articles, with bean cake produced locally and in Manchuria, which is here sold at about 1½ cents per pound. It is mostly

used by the Chinese for their draft animals. The exact quantity imported is not stated separately in the customs returns. If reasonable prices could be quoted a good market for cotton-seed cake as fodder might be found in the army here.

The use of edible oils appears to be increasing with the growth of the population. Very little is produced locally—none of the finer kinds—and there would consequently seem to be a good opportunity for the introduction here of various grades of cotton-seed oil. There has so far been no discrimination on the part of the Government against cotton-seed oil products, nor is there any prospect of such discrimination.

This market is very unstable, even staple articles selling frequently at below cost price, and again at remarkably high figures when stocks have been unexpectedly depleted, as often happens. The prices quoted must therefore be considered only as approximate.

WARSAW.

GENERAL USE OF COTTON-SEED OIL—COMPETING EDIBLE OILS.

Vice-Consul Witold Fuchs furnishes the following report from Warsaw, dated May 9, 1907:

Cotton-seed oil alone is used in the province of Warsaw. Cake and meal are not used. The oil is employed for technical purposes; in the manufacture of soap, when cheaper than animal tallow, in the manufacture of varnish, as an ingredient added to other oils, and also as edible oil, consumed as substitute for sesame oil. The yearly consumption of cotton-seed oil can not be determined strictly, for lack of statistics, but the aggregate import is estimated, by persons in touch with the trade, at some 20 carloads per annum. The price of cotton-seed oil varies from 5.15 to 5.50 rubles ($2.57 to $2.75) per pood (36 pounds) net, free Warsaw.

Cotton-seed oil as an edible oil comes within this province in competition with sunflower oil, linseed oil, hemp-seed oil, rape oil, and olive oil. The consumption of these rival oils can not be determined with exactness for want of statistics. Relative to olive oil, I have it from the railway statistics—the only reliable source of information—that the import amounts to 20,000 poods (about 330 tons) per annum. The price varies from 14 to 16 rubles ($7 to $8) per pood (36.1132 pounds), wholesale prime cost, free Warsaw. Sunflower oil is from 4.80 to 4.90 rubles ($2.40 to $2.45). Linseed and hemp-seed oil vary from 4.90 to 4.95 rubles ($2.45 to $2.47); rape oil from 5.20 to 5.40 rubles ($2.60 to $2.70) per pood, free Warsaw.

INCREASED IMPORTS.

There has been a slight increase in the quantity of cotton-seed oil imported. There is no discrimination by the Government in favor of or against the cotton-seed oil, being of inland produce only.

Cotton-seed oil is imported into this province from Russia proper. There are four manufactories in Russia which produce it as a

specialty, the three varieties or grades being known on the market as raw, refined, and double refined. Cake and meal are practically produced for export only.

Sunflower oil is imported from southern Russia, principally from Ekaterinodar and Armavir. The mill at Ekaterinodar is known to produce daily during the season not less than 5 carloads of this oil.

Linseed oil is imported from the northwest country and Volga district. Hemp-seed oil comes from southern Russia. Rape oil is produced within the province by two large mills, one of which is in Warsaw, the other at Kutno. The produce of the latter amounts to about 1,000 tons per annum.

Cotton-seed cake, linters, and meal are not used in this province.

TURKEY.

CONSTANTINOPLE.

GOOD RESULTS FROM REMOVAL OF RESTRICTIONS ON COTTON-SEED OIL.

Consul-General Edward K. Ozmun, writing from Constantinople, December 24, 1907, advises that the removal by the Government of Turkey of discriminations against cotton-seed products has resulted in increased sales of cotton-seed oil and opened an inviting market for American producers. The consul-general writes:

On May 3, 1907, through the efforts of the American embassy, the restrictions against cotton-seed oil, which had hitherto only been admitted into the Empire for industrial purposes, and after denaturing in the custom-house, were removed, and it was placed on the same footing as other edible oils, which are permitted entry after examination. From May 3 last until the recent fall in the price of cotton-seed oil there was no edible oil imported into this market. The first shipment for this market left the United States on November 16, 1907, and contracts have now been made forward. The arrivals will amount to about 1,000 barrels per month, and there are no stocks, as each parcel is sold as soon as it arrives here.

While at the date of the inquiry of the Interstate Cotton-Seed Crushers' Association, viz., November 19, 1907, cotton-seed oil had touched low-level prices, owing to the financial conditions prevailing, latest advices from New York, dated December 10, state that in view of the assistance of the Secretary of the Treasury and the larger banks the situation had improved, the market was recovering, and the prices were considerably firmer.

COMPETING ARTICLES—MARKET QUOTATIONS.

The oils with which cotton-seed oil enters into competition in this market are sesame-seed oil, imported from France, and local olive oil. The sesame-seed oil at the present time is abnormally high in price. These two oils can always be placed on the market at the same price. The preference will be given to cotton-seed oil, owing

to its better adaptability for mixing purposes. As regards local olive oil, there will have to be a margin of 10 francs per 100 kilograms ($1.93 per 220 pounds) in favor of cotton-seed oil to compete with this local product. The present conditions are entirely in favor of cotton-seed oil, and the extent of the imports will increase. The market quotations are as follows:

Prime summer yellow cotton-seed oil, 65 francs per 100 kilos ($12.54 per 220 pounds).
Sesame-seed oil, 96 francs per 100 kilos ($18.53 per 220 pounds).
Both delivered c. i. f. Constantinople, including cost of barrels.
Olive oil of good quality, 105 francs per 100 kilos ($20.26 per 220 pounds).

The new crop of olives is just commencing to be pressed, and it is expected that the price of olive oil will fall to 85 or 90 francs per 100 kilos ($16.40 to $17.37 per 220 pounds).

The extent of the imports of cotton-seed oil must always depend upon the result of the olive-oil crop, but it will be seen that at present (December 24, 1907) there is a margin of nearly 50 per cent between cotton-seed oil and sesame-seed oil, and even when this season's olive oil comes on the market there will still be a margin of 16 per cent before cotton-seed oil reaches the figure when olive oil will be a competitor in price, allowing the margin of 10 francs per 100 kilos between the two articles. No other cotton-seed products are sold on this market.

EGYPT.

OPERATIONS OF LOCAL MILLS.

LARGE EXPORTATIONS TO ENGLAND—PROSPECTS OF THE INDUSTRY.

Special Agent W. A. Graham Clark, writing on September 2, 1907, makes the following report on the cotton-seed oil industry in Egypt:

There are now in Egypt seven cotton-seed oil mills, of which three are at Alexandria, two at Zagazig, and two at Kaafr-el-Zayat. Their ordinary annual consumption is some 800,000 ardebs of seed, which is about 95,000 English tons. The exact amount of seed crushed in Egypt is not known, owing to a lack of returns from the mills, but a leading member of the Alexandria Produce Exchange gives the following as the ordinarily accepted figures for the past five years:

Season.	English tons.	Season.	English tons.
1901–2	55,000	1904–5	97,000
1902–3	80,000	1905–6	95,000
1903–4	87,000		

The capacity of the largest mill is about 1,000 ardebs, or 119 tons, a day. Three of the mills run gins in connection with the mills, but accounts are kept separately, for, while cotton is ginned for anyone, there are no seeds pressed in the mills for outsiders. All of the mills refine the oil.

EGYPTIAN MEASURES FOR COTTON SEED.

Cotton seeds are bought and sold in Egypt by the "ardeb." The ardeb is a measure of capacity, being equal to 198 liters or 5.4474 bushels, but in the purchase of cotton seeds it has a definite weight attached to it, so that an ardeb of cotton seed must weigh 270 rotls. A rotl is one-hundredth of a cantar, which is equal to 99.05 pounds, so that an ardeb of cotton seed weighs 267.435 pounds, and 1,000 ardebs is taken as about equal to 119 English tons.

The cotton-seed mills buy through local merchants or cotton buyers, who act as their brokers for the season. As all the mills are located in the Delta, the seed usually has to be transported only a short distance. Nearly all the seed crushed is of the Mit Afifi kind, as that forms the bulk of the crop, and the seeds of the cottons in upper Egypt are usually used for replanting or for other purposes. Egyptian seeds being smooth and almost free of fuzz, are neither delinted nor decorticated, but the seeds are cut up and crushed just as they are, and the oil cake contains both meat and hulls. The mills therefore have not linters or hulls as a by-product. The system is the same as with oil mills in England using Egyptian seed, and the fact that they are often quoted as getting so much larger percentage of oil cake than American mills is due to the hulls being included. Egyptian seeds, however, have more oil than American, containing as high as 24 per cent, to possibly 20 per cent in the American.

ABNORMAL PRICES OF SEED, OIL, AND CAKE.

The cost of seed at Alexandria is at present (August, 1907) abnormally high, being 81½ piasters (piaster=about 5 cents) an ardeb (ardeb=5.4474 bushels), while the normal price would be nearer 60 piasters. These prices correspond to about $34 and $25 an English ton, respectively, or, say, $30 and $22 per American ton. The cost of working seed is also higher than usual, though not in proportion, as not only are wages gradually advancing, but fuel is also higher priced than ordinarily, being now about $6.08 per ton landed from England. Egypt has no fuel and all has to be imported. With cheap freights America could well compete with England not only in coal for Egypt but for other Mediterranean countries as well.

One of the largest Alexandria mills gave the cost of working seed as ranging between 11 and 13 piasters an ardeb, which is about $4.60 to $5.45 per English ton. In crushing the seed very heavy presses are used, the pressure being run up to 400 tons, which on the 16-inch diameter plungers ordinarily used gives a pressure of 2 tons to the square inch. The oil is put up in American petroleum barrels of 40 to 50 gallons each. The price of the refined oil is now 3½ piasters an oke (oke=2.75 pounds), as compared with the normal price of 2½ piasters an oke. The price of oil is therefore about $142 an English ton, as compared with a normal price of under $100. Oil cake from Egyptian seed is now quoted in England at $21.87 per English ton. The prices at different points in Egypt vary, but the best is about $19.44 per ton. These abnormal prices of seed, oil, and cake are due to a variety of causes, among which may be placed the high price of cotton, but the main factor seems to be a corner in England effected by the soap dealers.

WAGES—ANALYSES OF EGYPTIAN COTTON SEED.

The wages of workmen in the Egyptian oil mills, in common with wages in all Egyptian manufacturing establishments, have been forced up of late, due to the increase in the cost of living, which has been partly brought about by the increasing prosperity of the country and partly by speculation. Though the head men of the mills are English, the workmen are nearly all Egyptian. Their wages are 8 to 10 piasters (40 to 50 cents) per day of ten hours for ordinary workmen, while the special skilled men get up to 12 or 14 piasters or over. During the pressing season, from October to April, the mills use two shifts and run night and day.

The Egyptian seed contains a larger percentage of oil, and hence is more valuable than that from any other country. Figures furnished by an Egyptian cotton-seed manufacturer of recent analyses show the following from an average good analysis: Seed, not dry, moisture 10 per cent; oily material, 24.08 per cent: seed, dry, oily material, 26.86 per cent. The seed analysis per 1,000 ardebs, or 97,200 okes, was as follows:

Constituents.	Per-centage.	Weight equiva-lent.
Oil	24.08	23,405
Water	10.37	10,080
Fibrous matter	65.55	63,715
Total	100.00	97,200

The oil cake contains 10.5 per cent water and 5.5 per cent oil, or a total of 16 per cent oil and water, and its weight will be 63,715÷84× 100=75,851 okes or 93.18 English tons. The oil results per 1,000 ardebs will be as follows:

	Okes.
Oil, absolute	23,405
Oil retained by cake on basis of 5.5 per cent	4,172
Crude oil that may be extracted	19,233
Loss in refining, 8 per cent	1,538
Refined oil in okes per 1,000 ardebs	17,695

An analysis made on Egyptian oil cake shipped to Hull shows:

	Per cent.
Moisture	11.73
Oil	4.83
Albuminoids (containing 3.71 per cent nitrogen)	23.19
Mucilage, sugar, digestible fiber, etc	34.45
Indigestible woody fiber	20.30
Mineral matter (ash) and sand	5.50
Total	100.00

The oil in the seed runs from 22 to 24 per cent usually, and it is considered that that retained in the cake should never be over 5.5 per cent and is usually under 5 per cent.

OIL USED FOR CULINARY PURPOSES—THE EXPORTATION OF SEED.

The great bulk of the cotton-seed oil consumed in Egypt, some three-fourths, is used for culinary purposes only, while the remainder is mostly used for soap stock. One of the Alexandria oil mill companies has furnished the Egyptian government with all the oil used for

lighting on the State railways. This amounts to some 16 tons a month and is the winter oil with all the stearin extracted; that is, pure oleo. There is also a small quantity of foreign cotton-seed oil imported into Egypt, which in 1906 came from the following countries:

Country.	Pounds.	Value.	Country.	Pounds.	Value.
United States	582,411	$26,485	Other countries	3,259	$168
England	470,049	19,841			
France	112,711	5,689	Total	1,183,860	52,954
Austria-Hungary	15,430	771			

In weighing unginned cotton the Egyptian cantar is taken as 315 rotls, as 315 rotls of unginned cotton is supposed to give 100 rotls of ginned cotton. This is only approximately correct, as the proportion varies with different varieties and at different seasons, but after allowing for dust, leaf, etc., the seeds are approximately nearly twice the weight of the lint. Figuring the seed crop as twice that of the cotton crop in weight and considering the export figures and the figures for the estimated home crushing, we find that of the cotton-seed crop of Egypt there is now about two-thirds exported, one-sixth crushed in Egypt, and the other one-sixth used for other purposes, such as planting, cattle feed, etc. It is usually estimated in Egypt that the seed reserved for planting will be one-eighth of the total seed crop. This is figured on 40 to 50 liters (liter=0.908 quart) of seed to the acre, and allowing for replanting, etc. The great bulk of the seed exported goes to Hull, which is the center of the English cotton-seed crushing industry. The present cost per ton landed in Hull may be figured at $38, the present price of seed in Alexandria being $34, freight, $2, and costs, insurance, interest, etc., $2. This is a rough estimate, as the costs vary according to time of year, size of shipment, etc. The freights also are variable. The present (August, 1907) freight rates per ton from Alexandria are as follows:

Destination.	Cotton seed.	Cotton cakes.
Liverpool and Manchester	$1.70	$1.46
London	1.94	1.46
Hull	1.82	1.46

LITTLE CHANGE IN EXPORTS FOR TEN YEARS.

The export of cotton seed from Egypt has remained very near the same figures, some 3,000,000 ardebs, for the last ten years or more. This is shown by the following table giving the weight in ardebs and their equivalent in pounds and the value of the same in United States currency:

Season.	Weight.		Values.
	Ardebs.	Pounds.	
1894–1899 (average)	3,223,076	861,963,330	$6,675,675
1899–1900	3,511,667	939,142,664	9,722,580
1900–1901	3,016,085	806,606,692	8,964,352
1901–2	3,484,368	931,841,956	10,129,826
1902–3	2,973,825	795,304,889	8,280,080
1903–4	2,976,057	795,901,804	7,734,378
1904–5	3,231,518	864,221,016	8,039,470
1905–6	3,244,264	867,629,743	8,683,467

For the fiscal year 1906, which in Egypt is the same as the calendar year, the Government figures show that the total export of cotton seed was 3,693,130 ardebs, which is 994,937,967 pounds, and that it was distributed as follows:

Whence exported.	Pounds.	Value.
England	855,052,275	$9,318,628
France	69,810,965	768,167
Germany	43,728,564	480,168
Austria-Hungary	17,222,814	318,329
Belgium	894,035	10,741
Holland	553,590	6,292
English possessions in East	177,577	2,056
China and the Far East	145,752	1,616
Turkey	69,533	756
Massowa	11,500	133
United States	5,616	54
Total	987,672,221	10,906,930

This shows that the cotton seed exported is mainly shipped to England (this year 86 per cent of the total), with small quantities to France, Germany, and Austria. The cotton-seed oil cake also is secured almost entirely by England, as shown by the following table:

Whence exported.	Tons.	Value.
England	71,007	$1,123,168
France	3,194	50,522
Germany	217	3,618
Italy	31	489
English possessions in the East	5	84
Total	74,454	1,177,881

GROWTH OF SEED-CRUSHING INDUSTRY IN EGYPT.

The present heavy shipment of Egyptian seed is a source of great loss of soil strength, for it is well known that it is the seed and not the lint that removes the greatest amount of the plant-growing constituents in the soil. Egyptian soils especially need nitrogen, in which Nile sediment is deficient, and the seed contains some 3 to 4 per cent nitrogen that would be very valuable if restored. The fact that the soil strength contained in the seed is not returned to the land in any form, but is exported, accounts to some extent for the fact that Egyptian farmers are finding it more and more necessary to import artificial fertilizers. For this reason the increase of cotton-seed oil mills in Egypt and the decrease of seed export means more to the country than the transferring of the manufacturing profit from England to Egypt. Seed crushing in Egypt is naturally not favored by the English crushers, but the industry is steadily, though slowly, increasing, and in ten years, if not sooner, Egypt will probably crush the bulk of her cotton seed at home.

SYRIA.

ALEXANDRETTA.

IMPORTS OF COTTON-SEED OIL PRODUCTS—MARKET FOR OLEOMARGARINE.

Consul Jesse B. Jackson, of Alexandretta, reports that the importation of the products of cotton-seed oil into Syria is increasing very rapidly, due principally to the shortage in the production of butter. The consul's report, dated December 11, 1907, continues:

The constant exportation of sheep and cattle, together with the ravages of disease among the flocks and herds, has brought about an enormous decrease in the number of butter-producing animals in all this part of the Ottoman Empire. Heretofore butter and olive oil were the only fats used for culinary purposes, principally because of their great production throughout the country, and further because the Mohammedan population are firmly against the use of pork and all of its products.

Some small consignments of cotton-seed oil have been received from time to time and used principally for mixing paints and for lubricating purposes, but as yet there is very little demand for it. None is used for cooking purposes, quite a sufficient quantity of olive oil being regularly produced to meet the requirements of the trade.

The recent continued advance in the prices of foodstuffs in general, and of butter in particular, has placed this commodity out of the reach of great masses of the people, who, of necessity, are compelled to resort to a cheaper article. They naturally turn to the most wholesome and convenient thing at hand, which in this case proves to be oleomargarine, or "American butter," as they are disposed to term it. Certain commission agents of this consular district are just now very active in the quest of this article, against the use of which there is no prejudice whatever, but on the contrary it is rapidly growing in favor, the market extending to every community.

QUALITY MAINTENANCE—DIRECT SALES ARE NECESSARY.

It must be borne in mind by exporters that there is one thing necessary to maintain the continuation of this increase in trade and to hold the business when it has once been established, and that is that the quality of the importation must remain as good as it is at present, and shipments must always be fresh and free from any unpleasant flavor.

There is another matter that is true of nearly every item of importation from America, and is most strikingly apparent in the case of oleomargarine, and which has a great tendency to retard the business. That is that certain parties in Constantinople have secured exclusive representation of large American companies for all of Turkey, thereby shutting out the local importers, who will not do business except directly with the firms in the United States.

The local commission houses, through whom practically all goods are imported, are, to a great extent, in control of the trade of their patrons, who are reluctant to buy except through their regular repre-

sentatives. If American exporters will take up this matter direct with the principal importers of this consular district, it will be much to their advantage. Prices should be quoted per kilo of 2.2 pounds, c. i. f. Alexandretta or Mersine, as the case may be, and all correspondence should be in French. [A list of the principal importers is on file with the Bureau of Manufactures.]

BEIRUT.

IMPORTERS WILLING TO BUY AMERICAN COTTON-SEED OIL.

Consul-General G. Bie Ravndal reports, under date of February 8, 1908, that considerable quantities of cotton-seed oil are employed at Beirut in the manufacture of soap, which is one of Syria's leading industries. He points out the following opportunity for the American article:

Nearly all of the cottonseed oil consumed comes from Egypt. I have discussed the matter with the leading importing firm with a view to opening a way for American cottonseed oil. This concern is one of Beirut's most prominent business houses, and is willing to enter into relations with American exporters of cottonseed oil. The firm imports from Hamburg large quantities of American oleomargarine. It would prefer to deal direct with the United States, but has experienced serious obstacles, especially on two points. American shippers have demanded cash in advance, while the only practicable way of settlement is payment on arrival of goods, draft being attached to bill of lading, usually sent for collection to the Imperial Ottoman Bank at Beirut. The other serious drawback is the carelessness shown by American exporters in regard to steamer sailings, permitting goods to take three months in transit while there is a line of steamships from New York which will bring them here in twenty-five days. These observations apply also to the matter of cottonseed oil. [The name of the Beirut importing firm and that of the New York steamship agents referred to may be obtained from the Bureau of Manufactures.]

INDIA.

AN INVITING FIELD FOR AMERICANS.

ONLY ONE NATIVE MILL—SEED LARGELY EXPORTED—CHANCE FOR AMERICAN MACHINERY.

Special Agent J. Graham Clark reports on the cotton-seed industry in India, writing from Bombay, July 4, 1907, as follows:

There are many valuable oil seeds grown in India. In the majority of instances the seeds are exported to foreign countries, the oil extracted and returned to India, or sold elsewhere at an advanced price.

To retain in India the manufacturing profit, oil mills have been started in several sections of the country and others are being projected. These are for linseed, rape, or sesamum oil seeds. The native newspapers are trying to start a movement in favor of cotton-seed mills, but the exporters of cotton seed do not appear to favor this.

There is at present only one regular cotton-seed oil mill in all India and that is in Burma. This mill is located at Myingyan on the Irrawaddy, was established in 1900 with a capital of 150,000 rupees, and is under the management of A. S. Jamal Brothers & Co. Seed cotton is purchased wholesale in Burma, also some from Bengal and Madras, ginned at the ginning plant connected with the oil mill, the cotton sold, and the seed then crushed, the oil extracted and refined, and the residue made into soap. Being situated on the Irrawaddy, the factory is well located in regard to water traffic with eastern India. The cotton-seed factory alone has an annual income of 125,000 to 160,000 rupees (rupee=32.4 cents).

OPERATIONS OF A LOCAL MILL.

Besides pressing its own seed the mill at Burma presses seed for merchants at the rate of 6 annas (12 cents) per maund of 40 pounds, or, if seed cotton is supplied, the charge for ginning and then pressing the seed is 8 annas (16 cents) per maund. The merchants who bring the seed are usually contractors for supplying oil to railways and steamers. It has been found by this mill that the seed from Rangoon, Calcutta, and Madras give about the same percentage of oil each. The general market rate for such seed at present is about 12 annas (24 cents) per 40-pound maund, which is equal to about $13.50 a ton of 2,240 pounds.

The Burma mill makes crude and refined oil and soap. Ordinarily from a maund of clean seeds there is obtained 4 tolas (12 pounds) lint, from 6¾ to 7 pounds oil, 19 pounds oil cake and meal, and the remainder hulls. This average, however, varies with each season. The mill runs twenty-two hours a day and has a production of 30 tons of seed daily. It was started with 20 tons a day, but owing to the great demand for the crude oil, arrangements were made to work 10 tons more per day, and this may possibly later be increased to the full capacity of the plant, which is about 50 tons. Kerosene lamps are used for night work, the town having no electric lights. The workmen in the factory are chiefly from Burma and Bengal, and their wages are 4 to 8 annas (8 to 16 cents) per day. Mistries (mechanics) and the higher skilled workmen get 1 to 1½ rupees (32 to 48 cents) per day. The engineer gets about 300 rupees per month. The expense of working 30 tons a day is about 5,400 rupees per month, which gives 6 rupees, say $2, per ton. This is about half the American figures, where the average cost of working the seed per ton is nearly $4.

PROCESS OF MANUFACTURE.

Making crude oil from cotton seed is simply a mechanical process consisting of cleaning the seed and separating the short lint from the seed, removing the hull from the kernel, cooking the meat to the proper consistency for pressing, and then squeezing out the oil,

leaving the pressed cake. Refining the oil is a chemical process consisting of mixing the crude oil with either caustic potash lye of 45° Baumé (3 gallons to 100 gallons crude oil) or else with soda lye of 30° Baumé (6 gallons to 100 gallons crude oil), heating and stirring, and then allowing it to cool and settle when the clear oil is poured off, leaving the brown soap sediment. Both processes are carried on with native workmen. The press used has a ram 12 inches in diameter and is worked at a pressure of 1½ tons per square inch. As usual, the pressure is applied by pumps, one set having 2½-inch and the other set 1-inch diameters, the larger pumps applying the pressure quickly until the meat is well compressed, when the small pumps give the final squeeze. Fifteen minutes suffice to completely extract the oil, which collects in a reservoir underneath. The oil as extracted is a deep red color and weighs 7½ pounds to the gallon.

There is a large demand for the oil as a lubricant for railroads, etc., and a good deal is used in the crude state without refining. The refined oil is used for culinary purposes in India and also in Japan and China. The remaining residues of oil are used in the manufacture of English and country soaps in the Myingyan factory. The selling price of the soap varies according to quality. The weights in Burma differ in some respects from those used elsewhere in India. In Burma 120 tolas is the unit (120 tolas=1 visha, about 3 pounds). The present market price for the refined oil in Burma is about 80 rupees per 100 vishas (300 pounds) and about 65 rupees for unrefined oil. The oil is packed in tins containing about 30 pounds each.

The residues of hulls are used for fuel, but could be converted into potash and phosphate of lime. Forty pounds of seed produce 19 pounds of pressed cake, which is sold in Burma and India for feeding stock, and the Chinese use it for fuel to a small extent. The price is about 1 rupee per maund. Some is exported to Japan for use as feed and fertilizer. This is sold by the market weight, "tokari," which is equivalent to 40 pounds net, being about the same as the local Burmese maund. The cost of 100 tokaris is now about 100 rupees. This is packed in gunny sacks containing 3 to 6 maunds of oil cake each. Japan uses annually immense quantities of bean cake for cattle food and fertilizer. This is obtained from Manchuria mainly, and if cotton-seed oil mills were erected in India it is probable that Japan would also buy the cotton-seed oil cake in large quantities.

COTTON OIL PREFERRED FOR CULINARY PURPOSES.

In Burma, India, China, and Japan cotton-seed oil is preferred to lard oil for culinary purposes, and it is claimed that for "shortening" and for pie crusts it is superior to lard or any other grease, both as to the taste and appearance of the finished crust. There should be a good demand in India, especially because lard is absolutely forbidden to Mohammedans, and to some other religious sects as well. There are over 60,000,000 Mohammedans in India, so the opening afforded by religious prejudice is a large one.

Refined cotton-seed oil has the color, transparency, and taste of olive oil and the same characteristics for lubricating and pharmaceutical purposes. Olein is the characteristic ingredient of each. It is almost impossible to distinguish a good cotton-seed oil from olive oil,

and the former is frequently employed to adulterate olive oil, about 25 per cent cotton-seed oil to 75 per cent olive oil being the proportions used. The Indian cotton-seed oil, however, is not as clear and pure as the American oil, nor of exactly the same taste or color, so is not so well suited for this purpose.

Owing to the absence of the gum that always exists in lard oil, cotton-seed oil is a better lubricator and luminant than the former. It burns longer and gives a brighter light, and this is one of the main uses to which the crudely extracted native oil is used in India. Being a fixed oil, it is nonvolatile, and therefore nonexplosive and safer than kerosene or similar oils.

PRODUCTION OF SOAPS AND LUBRICANTS.

The production of light-colored soap from crude cotton-seed oil, or from the residues, is obtained by purification. The oil is freed from impurities by settling or filtering. The residues are slightly warmed with a little water, and after cooling drawn off from the aqueous layer. The oil or the residues are then treated with sufficient strong soda lye so that the soap separates in flakes, which are removed from the strongly colored under layer. The soap is dissolved in as little water as possible and decolorized by the addition of chlorine water. Instead of the latter bleaching powder or potassium permanganate can be added, and afterwards acids. By the addition of an excess of such acids purified sebacic acids are separated. To remove the odor of soap made from cotton-seed oil the oil is sometimes boiled with an equal quantity of 25 per cent soda lye for three or four hours.

The Burma mill makes hard and soft soap, medicated and toilet soaps, soap for washing silk goods, etc.

As an instance, in making so-called "floating soap," 420 pounds of crude oil, 30 pounds of bleached tallow, 50 pounds of resin, and 120 pounds of cocoanut oil are first boiled with weak lye, the strength of which is gradually increased to 40° Baumé and the weight of which corresponds to 360 pounds. As soon as the paste is formed 600 pounds of flea-bane seed (Semen psyllia) is added and then the mixture boiled until the finished soap detaches itself from the boiler in the form of a dough. The compound is then perfumed, and shortly before pouring out some pulverized sodium of carbonate is added. The carbonic acid set free permeates the soap and causes the formation of empty spaces, thereby lessening the specific gravity and giving the soap the quality of floating on water.

In making a lubricant for industrial purposes there is melted together 130 pounds of castor oil, 20 pounds of animal fats, and 40 pounds of crude cotton-seed oil. Forty pounds of Indian meal is then added, and the whole boiled for 30 minutes. In making a lubricant from the oil residues, 500 parts of the oil residues and 100 parts of the water are placed in a kettle of suitable capacity and brought slowly to the boiling point. When all the oil is dissolved there is added in small portions 40 to 50 parts of hydrochloric acid of 8° to 10° Baumé and the mixture boiled and stirred for half an hour. At the expiration of this time, if the decomposition is complete, the acid forms a combination with the oil residues and the grease is liberated in the form of a thick oil. After resting for 24 hours the water containing the salts and excess of acids is drawn off and the

oil several times washed with a large quantity of water to free it from the last traces of acids. It is finally mixed with 10, 20, or 30 per cent of tallow, the quantity depending on the thickness of the oil. In making lubricants and refined oils as above, the local mill has had some success, and companies are being projected in various parts of India. I have heard of but one company that has been definitely organized, but the machinery dealers in Bombay, and also in England and America, are receiving letters of inquiry every day.

EXPORTATION OF SEED DEPRECATED.

The interest that is being taken in cotton seed at this time is due in part to an agitation being carried on by some of the native papers in favor of local manufactures. They claim that the increasing export of oil seeds from India is a great drain on the fertility of the country, a very small proportion being returned as oil cake or other material that will finally return to the soil; also, that if manufactured in India not only would the fertilizing portion of the seeds return to the soil, being applied direct or used as cattle feed, but that the manufacture would give employment to many and yield a return on capital. Last year the export figures for all the oil seeds, except linseed, including cotton seed, rape, sesamum, earthnut, castor, poppy seed, etc., showed decided increases, and the demand has caused a rise in price, and on most of the seeds the prices tends to rise still higher.

A landlord stated that formerly a price corresponding to about $12 a ton for Surat cotton seed landed on the cars at local stations was considered a good price, but the price had gradually risen in the last few years until it corresponded to about $16. At Bombay I found the bazaar price for best cotton seed landed in Bombay to be 20 rupees 8 annas per candy of 756 pounds, which would correspond to about $19.67 per English ton (2,240 pounds), which is probably higher than present rates for American seed in the United States. The cost, landed in England, would be about $26.35 a long ton, as follows: Initial cost in Bombay, $19.67; freight charges, Bombay to Hull, $3.77; bags, commission, insurance, etc., $2.92; total, $26.35.

WEIGHTS AND MEASURES—OIL SEED EXPORTS.

It may be noted that the candy, which is the local measure by which Indian cotton seed is sold in Bombay, is given as 756 pounds, or 27 maunds of 28 pounds each. This is the ordinary bazaar weight at Bombay, but the words "candy" and "maund," like nearly all terms of measure or weight used in India, have different meanings according to the place and the article. The official Indian maund corresponds to 40 official Indian seers of $2\frac{3}{5}$ pounds each, or, say, $82\frac{2}{7}$ pounds. The local Bombay maund (or "man") is 28 pounds. Twenty-seven of these maunds gives the 756-pound candy by which cotton seed is quoted, while cotton is quoted on a candy of 784 pounds, which is 700-weight. The candy on which quotations are based at several points in the cotton-seed districts are different from the local Bombay cotton-seed candy, therefore unless one is familiar with local conditions quotations are sometimes confusing. In Burma a common local maund, as noted above, in regard to the mill in Burma, is 40 pounds. It may also be stated that in all Indian quotations the ton refers to the long or English ton of 2,240 pounds.

The following table shows the comparative quantities of the various oil seeds shipped from India for the last six fiscal years ending March 31, the figures representing hundredweights of 112 pounds:

Article.	1902.	1903.	1904.	1905.	1906.	1907.
Cotton seed	2,086,000	3,974,000	2,677,000	2,529,000	3,891,000	4,842,000
Linseed	7,328,000	6,328,000	8,616,000	11,182,000	5,789,000	4,349,000
Rape	6,925,000	3,927,000	4,343,000	5,155,000	1,994,000	3,725,000
Sesamum	2,447,000	3,733,000	3,513,000	2,517,000	1,685,000	2,761,000
Earthnuts	1,085,000	1,036,000	1,922,000	1,674,000	1,374,000	1,750,000
Castor	1,324,000	1,752,000	1,567,000	1,461,000	1,299,000	1,501,000
Poppy	934,000	966,000	1,315,000	1,363,000	797,000	803,000

Bombay ships over half of the total, and of cotton seed it ships three-fourths or over. India's oil seeds are bought by the United Kingdom, Germany, France, and Belgium. Practically all the cotton seeds go to Great Britain, the majority going to Hull, England. Except cotton seed, the seed quotations at Bombay are per hundredweight, and the bazaar terms July 1, 1907, were as follows: Cotton seed, 20 rupees 8 annas per 756 pounds; rapeseed (bold), 8 rupees 3 annas per 112 pounds; rape seed (yellow Grezerat), 9 rupees 13 annas per 112 pounds; castor seed (ordinary), 8 rupees per 112 pounds; poppy seed, 10 rupees 4 annas per 112 pounds. (1 rupee= 32.4 cents; 16 annas=1 rupee.)

Considering the percentage of oil in the seed and the value of the finished product, cotton seed is the cheapest item in the list, notwithstanding the great rise in value in recent years.

VALUE OF COTTON SEED—CAKE UNKNOWN.

Unlike Indian cotton, of which a very small amount goes to England, Indian cotton-seed exports practically all go there, the main center of import being Hull. Hull does a very large business in cotton seed, but uses nearly all Indian and Egyptian. The Egyptian seed is better and higher priced than the Indian. Its chief advantage is that it has a higher average percentage of oil and is without the adhering fuzz or velvet that is typical of the Indian seed, and which makes the Indian seed harder for cattle to digest, as well as more troublesome to manufacture and to obtain a clean oil. The Indian cake is less palatable and contains more woolly fiber, and in some cases it has been found to have a bad effect on English cattle.

Cotton seed has always been considered a valuable product in India, the percentage of oil making it a safe food in most cases, notwithstanding its high percentage of husk and woolly fiber. It was also pressed in the rude country "ghani," but the husk and fuzz soaked up so much of the oil that this process was costly and the oil so obtained not pure. Cotton-seed oil cake is practically unknown in India, though other oil seeds—sesamum, rape, safflower, groundnut, niggerseed, etc.—are pressed in every large village and cake obtained therefrom and fed to cattle. In the cities these seeds are now pressed by hydraulic machinery, and linseed oil cake exported to Europe. At Lahore and Akola there are hydraulic press mills capable of dealing with cotton seed, but at present they are at work on other seeds.

ANALYSES OF SEED—TESTS IN THE UNITED STATES.

In regard to the percentages of oil in the Indian seed, the inspector-general of agriculture of India in 1903 had analyses made of 64

samples of cotton seed obtained from the cotton provinces, and the average results showed the following percentages of oil and fiber for each province:

District.	Oil.	Fiber.	District.	Oil.	Fiber.
Madras Presidency	17.41	17.41	Central Provinces	19.65	16.90
Bombay Presidency	17.66	17.04	United Provinces	19.89	16.89

A sample of Indian cotton seed (Surat) was recently sent by Baroda State to Bombay for examination to ascertain what quantity of oil could be chemically extracted from it. The test was made by D. D. Kanza, of the Techno-Chemical Laboratory, Bombay, and the sample was found to yield 20.9 per cent of oil.

Three samples of seed from Baroda State, which is in the center of the best cotton-growing district of India, were sent to the United States in the spring of 1907 for analysis by the chemists of different cotton-seed machinery manufacturers. The first test was reported as giving 42.7 gallons per ton of seed. The second chemist gave results as indicating 362 pounds per ton, or 18.1 per cent of oil. The third chemist reported the clean seed to consist of hulls and lint, 54.4 per cent; meat, 46.6 per cent, and that the meat contained oil, 29.68 per cent, water or moisture, 5.7 per cent.

It is expected that larger quantities of cotton-seed will be sent over to be made into cake and oil in an American cotton-seed oil mill as a test. If the practical results are favorable, and it is found that American machinery is or can be adapted to the smaller and fuzzier Indian seed, the result is that an oil mill will be immediately started in Baroda State, and that American cotton-seed oil machinery will be used not only in this but in other cotton-seed oil mills that will be built in India. Comparative figures for complete oil-mill plants, including motive power, etc., show that some American firms are quoting lower prices landed at Bombay than are the English, so the only thing needed is tests which will show that the American machinery is suited to Indian conditions.

AMERICAN ANALYSIS OF SEED.

CHEMICAL TEST IN NORTH CAROLINA SHOWS PRODUCT VALUE.

A sample lot of British India cotton seed which was received by the Department of Commerce and Labor was forwarded to North Carolina for chemical tests and experiment as to its value for utilization in oil mills in India. The results of the examination are shown in the following letter from E. W. Thompson, district manager of the Southern Cotton Oil Company, addressed to Mr. D. A. Tompkins, of Charlotte, N. C., to whom the seed was sent:

I received from you a sample of about 2 pounds of cotton seed from India, sent you by the Department of Commerce and Labor. I note the request from the Department for samples of oil made from these seed. You understand, of course, that I could not make oil in the usual manner from such a small quantity of seed. The best that can be done is to extract a little oil in the laboratory, and this

oil would not completely determine the value of the seed for the usual processes. If you can obtain as much as a ton of this seed, I will be glad to make a complete milling test and report results. In the meantime I have had a careful analysis made in our laboratory, and have sent you full copy of the result, together with a parallel analysis of average American upland seed. The principal features are as follows:

	American.	Indian.
Weight of seed (grams)	11.9	4.5
Per cent of meats	55.0	44.4
Per cent of hulls	45.0	55.6
Per cent of oil	21.4	16.0

It is not possible to forecast by this analysis what the exact difference would be in actual milling by American methods, but I think a fair estimate would be as follows, assuming the present average yields and values of products and omitting linters (which were not determined in analysis):

	American.		Indian.
44 gallons oil at 35 cents per gallon	$15.40	33 gallons oil at 35 cents per gallon	$11.55
800 pounds meal at $1.25 per 100 pounds	10.00	640 pounds meal at $1.25 per 100 pounds	8.00
650 pounds hulls at 30 cents per 100 pounds	1.95	900 pounds hulls at 30 cents per 100 pounds	2.70
Total	27.35	Total	22.25

This table would indicate the milling value of India seed $5.10 below the American, i. e., say, 18 per cent.

CALCUTTA.

COTTON-SEED EXPORTS—OPPORTUNITY FOR LOCAL FACTORIES.

Consul General W. H. Michael, of Calcutta, furnishes the following information concerning the utilization of cotton seed in India:

The fact that India exported last year 219,537 tons of cotton seeds, and that this tonnage represents only 10 per cent of the seeds produced annually in India, has caused an agitation on the subject of cotton-seed oil factories. The director of commercial intelligence of India calls attention to the great profit that awaits the enterprising man who puts in such mills. There would not only be a ready market for the oil, but also the oil cake.

The rapid increase in the amount of cotton seed exported from India during the last four years is attributed by the inspector-general of agriculture in India to the remunerative price received for cotton-seed oil and oil cake in European markets. The oil cake sells in England for feed for stock at a higher price than the seed itself commands in India. For example, cotton-seed sells in India for about 75 cents per hundredweight, and after the oil is expressed the cake sells in England for considerably more that that figure. Linseed sells for about $2.80, ground nuts for about $2.35, and gingelly or sesamum about $2.30 per hundredweight. The inspector-general expresses the opinion that cotton-seed oil would be a good substitute

for any of the vegetable oils used in India for cooking purposes, and would be much cheaper. He says:

There is opportunity in India to educate the farmer to use cotton-seed oil cake as cattle food, and when once its value is established there will be a constant demand for it at both large and small pressing mills. Experiments have been conducted at the Hissar cattle farm (government farm) and cotton-seed cake produced no bad results. The cattle were regularly worked throughout the whole period and maintained their condition as well as other worked cattle similarly employed on the farm.

The inspector-general refers to the immense production of cotton-seed oil and by-products in the United States, describes the American methods of manufacture and treatment, and then recommends that India follow the example of that country.

CHANCE FOR AMERICAN MACHINERY—ONLY ONE NATIVE MILL.

As the United States manufactures the simplest and best crushers for reducing the cotton seeds and the best machinery for expressing and treating the oil, why should not our manufacturers of such machinery take advantage of the opening without delay, and thereby be able to hold it forever? A half dozen young men familar with the business might get together at once and put in a cotton-seed oil plant, and thus secure to our manufacturers of cotton-seed oil machinery this trade.

A trade paper published in Calcutta states that there is at present only one regular cotton-seed oil mill in all India, and that is in Burma. This mill, which is located at Myingyan, on the Irrawaddy River, was established in 1900 with a capital of $50,000. The mill consumes cotton seed produced in Burma and Bengal and Madras provinces, and does a business exceeding $40,000 annually. In this connection the journal calls attention, as has been done by this office in several reports, to the opportunity presented in India for the profitable investment of money in an up-to-date cotton-seed oil mill. A writer in the paper referred to says:

It is almost a shame to see so much cotton seed go out of the country when it could be "expressed" here. The edible oil would be largely consumed throughout India, and the inferior grades would be used for the manufacture of soap. The oil cake would be used for food for cattle and for fertilizer.

CHINA.

TSINGTAU.

LOCAL PRODUCTS OCCUPY THE MARKET—OPENING FOR OIL MACHINERY.

Writing from Tsingtau, June 10, 1907, Consul Wilbur T. Gracey reports that cotton-seed oil and its products are not used to any great extent in the colony of Kiaochow. He continues:

Small quantities of cotton are grown in the hinterland at Kaumi, but only to a very limited extent. Cotton-seed oil is thus manufactured in a crude manner, but is never made in sufficient quantities to affect even the local trade. No cotton-seed machinery is used, the oil being extracted by small locally manufactured hand mills.

Cotton-seed oil would come into competition here with the locally manufactured peanut, walnut, bean, and castor oils, which are largely

exported from this port. The price of these products fluctuates greatly. During the month of May the average price of the various articles competing with cotton-seed products in the markets of Tsingtau were, in gold: Bean oil, $0.065; peanut oil, $0.05; bean cake, $0.015; peanut cake, $0.0125.

EXPORTS OF OILS.

It is impossible to obtain statistics as to the quantity manufactured and value of sales. During the year 1906, 4,582 tons of oil were hauled over the Shantung Railway toward the coast, and the table of comparative exports of the Imperial Chinese customs for the years 1902–1906 shows that the following quantities were exported from Tsingtau by foreign vessels:

[One picul=133⅓ pounds.]

Articles.	1902.	1903.	1904.	1905.	1906.
	Piculs.	*Piculs.*	*Piculs.*	*Piculs.*	*Piculs.*
Bean cake	4,613	3,586	3,424	338,363	172,352
Castor oil	.....	574	372	1,655	1,413
Bean oil	55,827	70,968	102,287	99,106	109,805
Peanut oil	71,519	95,133	83,325	67,572	81,697

During the year 1906 the following quantities, in addition, were exported by Chinese seagoing junks: Bean oil, 109,311 piculs; peanut oil, 75,987 piculs.

Cotton-seed cake or meal comes into direct competition as feedstuff and fertilizer with bean cake, which is one of the principal exports of Shantung Province and Kiaochow colony.

Cotton-seed oil does not come into competition with the local oils, probably owing to its higher cost. There is no discrimination on the part of either the Chinese or German colonial governments against cotton-seed oil.

There is undoubtedly an opportunity of introducing machinery for the manufacture of bean and nut oil in this district and the province of Shantung, but it must be introduced by special agents sent out by the machinery firms, who are able to explain their goods to the local tradesmen, show them the method of using, the saving in cost of labor, the excess of oil extracted by the use of modern machinery, and must, furthermore, sell on long credits or with little or no commissions until the machines are once introduced and appreciated by the natives.

PHILIPPINE ISLANDS.

MANILA.

COTTON-SEED PRODUCTS NOT USED—NATIVE VEGETABLE OILS.

Mr. N. B. McCoy, acting collector of customs at Manila, under date of June 10, 1907, makes the following report in relation to cotton-seed products in the Philippine Islands:

No cotton-seed oil, cotton-seed cake or meal, nor cotton-seed linters are used in the Philippine Islands. If imported, cotton-seed oil

would come in direct competition with cocoanut and certain other vegetable oils. Cocoanut oil is of local production and of large consumption here. It is worth about 1.40 pesos to 1.45 pesos per gallon (70 to 72½ cents).

Practically no commercial fertilizers are used, and cattle are fed, with the exception of those belonging to the Government and the American colony, entirely upon green fodder. So far as known no cotton-seed products have ever been imported into the Philippine Islands. There is, of course, no discrimination on the part of the local government against any of these products.

BRAZIL.

RIO DE JANEIRO.

COTTON OIL AS FOOD—IMPORTATION COMPARED WITH OLIVE OIL.

There is a first-class market for cotton-seed oil in Brazil, states Consul-General G. E. Anderson, of Rio de Janeiro, who says it is a market that is growing rapidly and promises much. The consul-general, in a report dated October 1, 1907, continues:

How much the continued development of the cotton-growing industry in the country is to interfere with this trade remains to be seen, but the indications are that the demand for olive oil and cotton-seed oil will increase in even greater proportion than the home supply of cotton-seed products. The uses of cotton-seed oil are various, corresponding with those common in the United States. Oils are popular in foods among the European-born population of the country, especially among the Italians of Sao Paulo, and the American product seems to be preferred.

Of olive oil the imports into Brazil in 1906 aggregated 2,399 metric tons (metric ton=2,204.6 pounds), valued at the exchange equivalent of about $812,225. Of this amount, representing a decrease of about 8 per cent as compared with the imports of the year previous, Portugal furnished about half, Italy about a quarter, and Spain and France practically all of the balance. So far as I can learn this oil was almost altogether the pure olive product, though it is possible that there was some mixing done and some of the imports were of the mixed class. The retail price of the article is high, owing both to the high duty and to general business conditions in Brazil, so that the consumption of pure olive oil is not great, comparatively, when the fondness of the people for oil products is considered.

DUTIES ON COTTON-SEED AND OLIVE OIL.

The imports of cotton-seed oil as such are not differentiated in the customs returns from other vegetable oils, but they were about $410,000, and of this the United States sent over 80 per cent. The local importers of the American product express themselves as very well satisfied with the nature of their trade and its prospects. The use of cotton-seed oil, of course, is much more extensive than the imports measure. In 1905 Brazil exported considerable cotton-seed oil, but

sent none abroad last year, the home market taking at a good price all that was offered. As between olive oil and cotton-seed oil, conditions generally, including tariff rates, are decidedly in favor of the cotton-seed product. A local importer of American cotton-seed oil has prepared a statement of the duties on the two products now actually charged, as follows:

100 barrels of cotton-seed oil = 5,000 gallons = 17,184 kilos net, at 200 reis per kilo		3,436$800
Charge for statistics		2$000
		3,438$800
Of this 50 per cent gold equals	1,718$400 and paper,	1,720$400
Add 2 per cent for port works	137$470	
	1,855$870	
1,855$870 gold equals £208 15s. 8d., which, at £15 1s. 16d., is		3,326$670
Total duty on 5,000 gallons		5,047$070
Duties per gallon, reis 1$009, or about 30.25 cents American gold.		
100 barrels of olive oil = 5,000 gallons = 17,184 kilos; 17,184 kilos, at 400 reis per kilo		6,873$600
Charge for statistics		2$000
		6,875$600
Of reis 6,875$600 there is 35 per cent in gold, which amounts to		2,406$110
Add 2 per cent port charges		274$940
	(Brazilian gold)	2,681$050
Which equals £301 12s. 4d., and, at £15 1s. 16d., equals		4,805$840
Add 65 per cent of 6,875$600 payable in paper		4,469$490
Total duties on 5,000 gallons		**9,275$330**

Duty per gallon, reis 1$855, or 55.7 cents American gold.

SHIPPING AND MARKET REQUIREMENTS.

In the above calculations no difference in the weight of olive oil and cotton-seed oil was noted, the difference, if any, being very slight. Cotton-seed oil at present is sold surprisingly close to the figures for olive oil, and the advantage of handling it is evident. The olive oil is handled very largely in the original packages as shipped from Portugal and Italy and common in the United States. The cotton-seed oil is imported largely in casks and bottled or tinned here. The tariff advantage of this plan is great, the tariff on the article in casks being net and on that in packages gross. All shipments are admitted only after careful Government analysis and investigation, both more or less expensive.

American exporters desiring to get into the market here can do so to advantage only after taking the matter up carefully with Brazilian importers and being prepared to suit the nature and conditions of their shipments to the Brazilian market. This is true of all food products imported into Brazil. Only those familiar with local conditions, local requirements, and the inspection laws of Brazil can advantageously import. Quotations based upon cost f. o. b. American port will probably be found the most acceptable.

UNITED STATES.

EXPORTS OF COTTON-SEED PRODUCTS.

FOREIGN CONSUMERS OF AMERICAN SEED, OIL, AND CAKE.

The following table shows the value of cotton-seed products exported to the several countries during the calendar years ended December 31, 1906 and 1907:

Whither exported.	1906.		1907.	
	Quantity.	*Dollars.*	*Quantity.*	*Dollars.*
Cotton-seed oil (gallons):				
United Kingdom	2,947,113	1,026,632	3,618,692	1,457,501
Austria-Hungary	1,645,059	599,247	174,377	70,615
Belgium	954,145	303,505	889,993	354,345
France	7,914,252	2,884,083	5,809,064	2,573,125
Germany	4,353,845	1,414,905	3,682,879	1,594,055
Italy	1,283,410	497,115	1,718,327	740,386
Netherlands	12,976,717	4,236,638	12,125,167	5,222,631
Other Europe	1,214,462	447,663	1,977,329	906,901
British North America	1,058,468	402,748	1,380,107	651,532
Central American States and British Honduras	92,230	39,350	114,655	63,128
Mexico	2,554,613	787,918	3,059,040	1,101,560
Cuba	481,137	213,392	535,559	241,732
Other West Indies and Bermuda	1,047,025	414,233	982,190	487,871
Argentina	200,901	78,575	214,184	108,638
Brazil	659,449	249,917	1,245,438	599,168
Chile	98,252	49,357	260,959	160,374
Other South America	410,448	162,439	516,337	267,138
British Australasia	10,711	4,297	44,145	24,242
Other Asia and Oceania	13,279	5,403	12,774	7,187
British Africa	134,363	53,452	170,859	84,614
All other Africa	247,973	92,562	572,794	232,446
Total	40,297,852	13,993,431	39,108,869	16,949,149
Oil cake (pounds):				
United Kingdom	146,219,989	1,749,358	134,810,745	1,683,119
Belgium	54,142,355	672,856	28,802,447	377,331
Denmark	442,768,057	5,465,140	515,776,520	6,415,146
France	16,695,593	193,880	17,459,608	206,943
Germany	367,025,064	4,784,526	395,411,558	5,131,864
Netherlands	82,898,380	1,070,060	55,103,137	699,568
Other countries	18,133,145	229,448	36,069,732	497,750
Total	1,127,882,583	14,165,268	1,183,433,747	15,011,721
Cottolene, etc. (pounds):				
United Kingdom	16,122,065	1,094,318	22,524,177	1,780,980
Germany	4,839,302	342,345	3,477,724	272,337
Netherlands	6,768,557	477,903	5,376,312	476,375
Other Europe	8,631,221	586,061	7,440,798	601,169
Mexico	9,722,930	666,379	6,094,858	513,556
Cuba	17,638,344	1,089,471	24,591,772	1,989,863
British East Indies	393,738	27,768	1,784,563	158,004
Other countries	7,550,920	516,833	12,120,005	1,057,161
Total	71,667,072	4,801,078	83,410,209	6,849,445
Cotton seed (pounds)	20,215,755	245,920	15,970,925	194,745
RECAPITULATION.				
Cotton-seed oil (gallons)	40,297,852	13,993,431	39,108,869	16,949,149
Oil cake (pounds)	1,127,882,583	14,165,268	1,183,433,747	15,011,721
Cottolene, etc. (pounds)	71,667,072	4,801,078	83,410,209	6,849,445
Cotton seed (pounds)	20,215,755	245,920	15,970,925	194,745
Total		33,205,697		39,005,060

VALUES OF FOREIGN COINS AND CURRENCIES.

[As given by the Director of U. S. Mint and published by Secretary of the Treasury Jan. 1, 1908.]

COUNTRIES WITH FIXED CURRENCIES.

Countries.	Monetary unit.	Value in U.S. gold.	Coins.
Argentina	Peso	$0.965	Gold—argentine ($4.824) and ½ argentine; silver—peso and divisions.
Austria-Hungary	Crown	.203	Gold—10 and 20 crowns; silver—1 and 5 crowns.
Belgium	Franc	.193	Gold—10 and 20 francs; silver—5 francs.
Brazil	Milreis	.546	Gold—5, 10, and 20 milreis; silver—½, 1, and 2 milreis.
British N. A. (except Newfoundland).	Dollar	1.00	
British Honduras	do	1.00	
Chile	Peso	.365	Gold—escudo ($1.825), doubloon ($3.65), and condor ($7.30); silver—peso and divisions.
Colombia	Dollar	1.00	Gold—condor ($9.647) and double condor; silver—peso.
Costa Rica	Colon	.465	Gold—2, 5, 10, and 20 colons ($9.307); silver—5, 10, 25, and 50 centimos.
Denmark	Crown	.268	Gold—10 and 20 crowns.
Ecuador	Sucre	.487	Gold—10 sucres ($4.8665); silver—sucre and divisions.
Egypt	Pound (100 piasters).	4.943	Gold—5, 10, 20, and 50 piasters; silver—1, 2, 5, 10, and 20 piasters.
Finland	Mark	.193	Gold—10 and 20 marks ($1.93 and $3.859).
France	Franc	.193	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Mark	.238	Gold—5, 10, and 20 marks.
Great Britain	Pound sterling	4.866½	Gold—sovereign (£) and half sovereign.
Greece	Drachma	.193	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti	Gourde	.965	Gold—1, 2, 5, and 10 gourdes; silver—gourde and divisions.
India	Pound sterling[a]	4.866½	Gold—sovereign (£); silver—rupee and divisions.
Italy	Lira	.193	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan	Yen	.498	Gold—5, 10, and 20 yen; silver—10, 20, and 50 sen.
Liberia	Dollar	1.00	
Mexico	Peso[b]	.498	Gold—5 and 10 pesos; silver—dollar[c] or peso and divisions.
Netherlands	Florin	.402	Gold—10 florins; silver—2½, 1 florin, and divisions.
Newfoundland	Dollar	1.014	Gold—$2 ($2.027).
Norway	Crown	.268	Gold—10 and 20 crowns.
Panama	Balboa	1.00	Gold—1, 2½, 5, 10, and 20 balboas; silver—peso and divisions.
Peru	Libra	4.866½	Gold—½ and 1 libra; silver—sol and divisions.
Philippine Islands	Peso	.50	Silver—peso, 10, 20, and 50 centavos.
Portugal	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Russia	Ruble	.515	Gold—5, 7½, 10, and 15 rubles; silver—5, 10, 15, 20, 25, 50, and 100 copecks.
Spain	Peseta	.193	Gold—25 pesetas; silver—5 pesetas.
Sweden	Crown	.268	Gold—10 and 20 crowns.
Switzerland	Franc	.193	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Piaster	.044	Gold—25, 50, 100, 250, and 500 piasters.
Uruguay	Peso	1.034	Gold—peso; silver—peso and divisions.
Venezuela	Bolivar	.193	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

COUNTRIES WITH FLUCTUATING CURRENCIES.[d]

Country and monetary unit.	Oct. 1, 1906.	Jan. 1, 1907.	Oct. 1, 1907.	Jan. 1, 1908.
Bolivia:	Cts.	Cts.	Cts.	Cts.
Silver boliviano	48.5	51.0	49.9	42.9
Central America:				
Silver peso	48.5	51.0	49.9	42.9
China:				
Amoy tael	73.0	83.6	81.8	70.4
British dollar	62.3	55.0	53.8	46.3
Canton tael	79.2	83.3	81.5	70.2
Chefoo tael	76.0	79.9	78.2	67.3
Chinkiang tael	77.6	81.6	79.9	68.8
Fuchau tael	73.5	77.3	75.6	65.1
Haikwan (customs) tael	80.8	85.0	83.	71.6
Hankow tael	74.3	78.2	76.5	65.9
Hongkong dollar	62.3	55.0	53.8	46.3
China—Continued.				
Kiaochow tael	77.0	81.0	79.2	68.2
Mexican dollar	52.6	55.4	54.2	46.8
Nankin tael	78.6	82.7	80.9	69.7
Newchwang tael	74.5	78.4	76.7	66.1
Ningpo tael	76.4	80.3	78.6	67.7
Peking tael	77.5	81.5	79.7	68.6
Shanghai tael	72.6	76.3	74.7	64.3
Swatow tael	73.4	77.2	75.5	65.0
Takau tael	79.9	84.1	82.3	70.8
Tientsin tael	77.0	81.0	79.2	68.2
Persia:				
Silver kran	8.9	9.4	9.2	7.9
Straits Settlements:				
Silver dollar	52.3	55.0	53.8	46.3

[a] The rupee, $0.3244½, 15 to the sovereign, constitutes the money of account.

[b] Seventy-five centigrams fine gold.

[c] Value in Mexico, $0.498.

[d] Coins of silver-standard countries are valued by pure silver content at average market price of silver for the three months preceding date of circular issued by United States Treasury Department.

CONSULAR AND TRADE PUBLICATIONS.

The publications made up chiefly of reports from United States consular officers in foreign countries include the following:

COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

REVIEW OF WORLD'S COMMERCE, being a summary of the annual reports contained in COMMERCIAL RELATIONS.

DAILY CONSULAR AND TRADE REPORTS, issued daily, except Sundays and legal holidays, mailed gratuitously to commercial and industrial organizations, manufacturers, exporters, and the press.

MONTHLY CONSULAR AND TRADE REPORTS, compiled from the daily, and issued every month with index.

SPECIAL CONSULAR REPORTS, on particular subjects, made in pursuance to instructions from the Departments of State and of Commerce and Labor.

Until July, 1903, all Consular Reports were issued by the Bureau of Foreign Commerce of the Department of State; from that date until June, 1905, they were issued by the Bureau of Statistics of the Department of Commerce and Labor, with which the Bureau of Foreign Commerce of the Department of State was consolidated July 1, 1903; since July 1, 1905, they have been issued by the Bureau of Manufactures, Department of Commerce and Labor. For details of these publications, and the reports remaining for distribution, address "Chief, Bureau of Manufactures, Department of Commerce and Labor, Washington, D. C."

The publication of reports on specific subjects, in separate form, was begun in 1890. The editions of many of them are exhausted. The following titles are available for distribution:

Vol. 23 (1901).—Part I. Gas and Oil Engines.
Vol. 26 (1903).—Briquettes as Fuel in Foreign Countries.
Vol. 27 (1903).—Markets for Agricultural Implements and Vehicles.
Vol. 32 (1904).—Foreign Markets for American Fruits.
Vol. 39 (1907).—Cotton-Seed Products in Foreign Countries.
Vol. 40 (1907).—Motor Machines.
Foreign Markets for Sale of American Cotton Products.
Cotton Fabrics in British India and The Philippines.
Leather and Boots and Shoes in European Markets.
England's Cotton Industry.
Tariff series:
No. 1. Tariffs on Leather and its Manufactures.
No. 2. Tariffs on Agricultural and Animal Products.
No. 3. Tariffs on Machinery, Machine Tools, and Vehicles.
No. 4. Conventional Tariff of Servia, based on Treaties with Great Britain, France, and Italy.
No. 5. Commercial Agreement between the United States and Germany.
No. 6. Customs Tariff of France.

A few copies of reports made by special agents on trade conditions in the countries visited by them are also available, as follows:

Argentina.
Asiatic Turkey.
Brazil.
Central America and West Coast of South America.
China.
Cuba.
India.
Japan and Korea.

"Trade with China" is a pamphlet of 110 pages, illustrated, with an introductory chapter on Packing. It is compiled from reports made by special agents which were printed in Daily and Monthly Consular and Trade Reports. A few copies are available.

Of the MONTHLY CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Department will be grateful for the return of any copies of the Monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, franking labels to be used in lieu of postage in the United States, the Philippine Islands, Hawaii, and Porto Rico will be forwarded.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

All communications relating to CONSULAR REPORTS should be addressed, "Chief, Bureau of Manufactures, Department of Commerce and Labor, Washington, D. C."

CONSULAR FEES.

RATES PRESCRIBED BY THE PRESIDENT.

Following is the tariff of fees prescribed by the President, under the act for the reorganization of the consular service, to be charged by consular officers of the United States. All consular charges must be in strict accordance with and be collected in gold or its equivalent, and no fee or compensation will be collected for any service not covered by this tariff. American vessels and seamen are exempted by law from the payment of consular fees. Foreign-built vessels, unregistered, owned by American citizens, are not exempt from the payment of the prescribed fees.

Nature of service.	Fee.
Miscellaneous services.	
1. Certificate to invoice, including declaration, in triplicate or quadruplicate, covering either importations or transit shipments, including any additional declaration or certificate not otherwise provided for which is required by law or regulations for use in connection with the entry of the wares or the forwarding of the same in bond	$2.50
2. Invoice of returned American goods	1.00
3. Extra certificates or declarations as above described, including immigrant's oath (Form No. 128), when issued without an invoice certificate, each	1.00
4. Certificate to extra copies of invoices, each	1.00
5. Certificate of disinfection, in triplicate or quadruplicate	2.50
6. Landing certificate, including oaths of master and mate, and the complete execution of the certificate	2.50
7. Sealing cars coming from Canada or Mexico, for each manifest in quadruplicate with the consul's certificate, including sealing of each car, vessel, bale, barrel, box, or package	1.00
8. Issuing a passport—Form No. 9	1.00
9. Visaing a passport—Form No. 10	1.00
10. Visaing a Chinese passport or certificate	1.00
11. Marriage certificate, in duplicate, Form No. 87	1.00
12. For taking into possession the personal estate of any citizen who shall die within the limits of a consulate, inventorying, selling, and finally settling and preparing or transmitting, according to law, the balance due thereon, $2 for each $100 of value or fraction thereof. If part of such estate shall be delivered over before final settlement, $1 for each $100 of value or fraction thereof to be charged on the part so delivered over as is not in money, and $2 for each $100 of value or fraction thereof on the gross amount of the residue. If among the effects of the deceased are found certificates of foreign stock, loans, or other property, $1 for each $100 of value or fraction thereof on the amount thereof. No charge will be made for placing the official seal upon the personal property or effects of such deceased citizen, or for breaking or removing the seals.	
13. For each certificate of protection, semsar, or certificate of employment issued at Tangier	2.00
Services to vessels and seamen.	
14. Bill of health, in duplicate[a]	5.00
15. Supplemental bill of health, in duplicate[a]	2.50
16. For receiving and delivering ship's register and papers, including consular certificates, as prescribed in Form Nos. 13 and 14, $1 for each 100 tons or fraction thereof, registered measurement (net), of the vessel for which the service is performed, if under 1,000 tons; but for American vessels running regularly by weekly or monthly trips, or otherwise, to or between foreign ports, this tonnage fee will not be charged for more than four trips in a year; and tonnage fees shall not be exacted for any vessel touching at or near ports in Canada on her regular voyage from one port to another within the United States, unless some official service required by law shall be performed.	

[a] Foreign war vessels are exempt from the payment of fees for bills of health.

Nature of service.	Fee.
Services to vessels and seamen—Continued.	
17. And for every additional 100 tons net or fraction thereof	$0.50
18. Shipping or discharging seamen, including the certificates thereof attached to crew list and shipping articles and given to seamen	2.00
19. Authentication of copies of protests or other necessary documents for vessels or seamen not otherwise provided for	2.00
20. Preparation and acknowledgment for vessels or seamen of any oath or declaration for which a form is given in the Consular Regulations, or a similar necessary service not otherwise provided for	2.00
21. Preparation and execution for vessels or seamen of any certificate for which a form is given in the Consular Regulations, or similar necessary service not otherwise provided for	2.00
22. Orders or letters for vessels or seamen for which forms are given in the Consular Regulations, or other similar necessary service not otherwise provided for	2.00
23. Recording, when necessary, for vessels or seamen any document covered by the provisions of the Consular Regulations, for every hundred words or fraction thereof	.50
24. Noting marine protest—Form No. 37	2.00
25. Extending marine protest—Form No. 38	3.00
If it exceed two hundred words, for every additional one hundred words	.50
26. Protest of master against charterers or freighters—Form No. 39	2.00
27. Clearance when issued by the consul, as at free ports	2.00
28. Attending an appraisement of vessel's goods or effects for each day's attendance	5.00
29. Attending sale of vessel's goods, for each day's attendance during which the sale continues	5.00
30. Attendance at a shipwreck, or for the purpose of assisting a ship in distress, or of saving wrecked goods or property, over and above traveling expenses, whenever the consul's interposition is required by the parties interested, for each day	5.00
Notarial and other services.	
31. Administering an oath and certificate thereof[a]	2.00
32. Administering oath and preparing passport application	1.00
33. Acknowledgment of a deed or power of attorney, or similar service, including one or more signatures, with certificate thereof	2.00
34. Administering any and all oaths required to be made by pensioners and their witnesses in the execution of their pension vouchers, or certifying to the competency of a local official before whom the same were executed	No fee.
35. Acknowledgments connected with the transfer of United States bonds	No fee.
36. Administering oaths to or taking acknowledgments of officials or employees of the United States Government in connection with their official business or accounts	No fee.
37. For rendering notarial services to officials of foreign governments who render gratuitously reciprocal courtesies to American diplomatic and consular officers	No fee.
38. Certifying to official character of a foreign notary or other official	2.00
39. For taking depositions, executing commissions or letters rogatory, where the record of testimony, including caption and certificate, does not exceed 500 words	10.00
For each additional 100 words or fraction thereof	.50
The foregoing fee shall cover the administration of the oath and all services of the consul as commissioner, but shall not include services of clerk, stenographer, or typewriter, which shall be additional at the rate prescribed herein for copying.	
40. Copies:	
For the first hundred words or fraction	.50
For every additional hundred words or less	.25
41. Translations; for every one hundred words or fraction	.50
42. Additional fee for all services contemplated by fees numbered 31, 32, 33, 38, 39, when rendered elsewhere than at the consular office at the request of the interested parties, for each hour or fraction thereof	1.00
In connection with any service rendered outside of the consular office at the request of private individuals, the exact amount of the expenses actually and necessarily incurred by the person rendering the service shall be collected from the persons for whom the service is performed in addition to the fee or fees prescribed therefor, and a note of the amount shall be made on the margin of the fee book and fee return opposite the entry of the service and fee; but no amount in excess of the fee or fees prescribed and such actual and necessary expenses shall be charged or accepted.	

[a] Executive order of December 21, 1906, prescribes that no fee shall be charged for the affidavit of temporary stay of owner of sealskin garment entering the United States from Canada.

O

60TH CONGRESS, 1st Session } SENATE { DOCUMENT No. 282

REPORT ON TRADE CONDITIONS IN ECUADOR

By

CHARLES M. PEPPER

Special Agent of the Department of Commerce and Labor

TRANSMITTED TO CONGRESS IN COMPLIANCE WITH THE ACT OF FEBRUARY 26, 1907, AUTHORIZING INVESTIGATIONS OF TRADE CONDITIONS ABROAD

FEBRUARY 19, 1908

Referred to the Committee on Commerce and ordered to be printed

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1908

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DEPARTMENT OF COMMERCE AND LABOR,
OFFICE OF THE SECRETARY,
Washington, February 17, 1908.

SIR: In compliance with the act making appropriations for the legislative, executive, and judicial expenses of the Government for the fiscal year ending June 30, 1908, approved February 26, 1907, I have the honor to transmit herewith the report of Special Agent Charles M. Pepper on Trade Conditions in Ecuador.

Respectfully.

OSCAR S. STRAUS,
Secretary.

The PRESIDENT OF THE SENATE.

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LETTER OF SUBMITTAL.

GUAYAQUIL, ECUADOR, *January 15, 1908.*

SIR: In submitting the appended Report on Trade Conditions in Ecuador I wish to call attention to the especially favorable prospects which exist for trade with the United States.

Ecuador through its geographical position will be the most directly benefited of the west coast countries of South America by the Panama Canal, and the results of that waterway in the increased volume of commerce seeking this route are already being anticipated at Guayaquil. Fuller benefits will be secured when this wealthy port with its many natural advantages for shipping and its facilities for handling commodities of import and export is protected from the ravages of tropical epidemic diseases by placing it in line with modern scientific sanitation as has been done so successfully at Habana and Panama.

An important means of developing the internal resources of the country is the American Railway extending from the coast across the Andes to the capital. With the means of transportation thus facilitated an increase of commerce should follow, and some indications of this are now apparent. The full effects in providing an outlet for Ecuadorian products and in enlarging the market for goods from abroad ultimately will be shown in the addition to the foreign trade. There is now an interchange of commodities to the approximate value of $22,000,000 annually. In the actual exchange the balance is in favor of Ecuador. The country is especially favored in the tropical agricultural exports which form the bulk of its exports, for most of them are produced in few other regions and in the face of lowered values of such staple tropical products as coffee are able to command higher prices. This is in particular true of cocoa, or chocolate, which provides more than one-half the total exports.

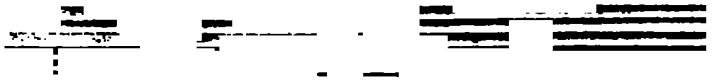
The products imported comprise textiles, foodstuffs, railway material, electrical and other machinery in small quantities as yet, and a large variety of miscellaneous manufactured articles. The United States supplies its full share of all the imports except in textiles. The cotton piece-goods trade, once almost entirely in American hands, has passed to Manchester.

Financial stability is so important an element in international trade that I have described briefly Ecuador's monetary system, which is maintained on the gold standard and facilitates commercial exchange by the safeguard it affords against violent fluctuations.

Respectfully,

CHARLES M. PEPPER,
Special Agent of the Department of Commerce and Labor.

To Hon. OSCAR S. STRAUS,
Secretary of Commerce and Labor.



TRADE CONDITIONS IN ECUADOR.

ACCESSIBILITY AND RESOURCES.

Ecuador in its geographical relation occupies an advantageous position among the west coast countries of South America. Accessible by Panama and by the Straits of Magellan, its value as a future market for foreign products does not depend so much on ocean transportation facilities as on the addition to its purchasing power through the increase in its natural resources such as cocoa, and by the improvement in the means of communication which will draw isolated districts together and enable them to get their products to the coast and receive imported goods in exchange. That the trade has not advanced more rapidly is due to the slowness with which the obstacles to internal development have been overcome and also to the failure to take advantage of favorable natural conditions.

Though on their face the statistics do not show it, the total foreign commerce of Ecuador for the last five years has ranged approximately from $18,000,000 to $22,000,000, the merchandise exports exceeding the imports by from $2,000,000 to $2,500,000 annually, with no heavy charges to pay abroad, the chief one being interest on some $12,000,000 of railway bonds funded into a national debt. This and other remittances, such as to large landowners living in Europe and drawing their incomes from estates in Ecuador probably establish an actual equilibrium. The exportation and importation per capita is difficult to fix with exactness because of the uncertainty as to the number of inhabitants.

AREA AND POPULATION.

The area of Ecuador is usually placed at 116,000 to 119,000 square miles and the population estimated at from 1,300,000 to 1,500,000. The settlement of boundary disputes with neighboring countries would not reduce the area materially. The number of inhabitants is more difficult to arrive at. A partial census was taken by the Government in 1900 and since then the official estimate has been 1,500,000, though the full returns have not been published and some Government publications continue to make estimates of taxation and debt on the assumption of only 1,300,000 inhabitants. This also has been the basis of calculations of the foreign consuls in Ecuador. The most

detailed was that of the British consul at Quito in 1892, who took the countries by districts.

LEADING CITIES.

Wide variations appear in such figures as are obtainable. Quito, the capital, is usually credited with a population of 80,000 and in Spanish colonial times it did have that number. But the Government census taken as recently as 1906 enumerated only 51,000. Allowing 10 per cent of the inhabitants to have escaped enumeration, which is entirely probable from various causes, the population of the capital at the present period would be about 56,000. Guayaquil, on the other hand, shows an increase. In 1890 the population was 45,000 and the census of 1899 gave 60,000. Though the floating population at all times is large, there has been an increase in the permanent residents, as is shown by the large number of new dwellings that have been erected, and Guayaquil at the beginning of 1908 may be said to have from 70,000 to 75,000 inhabitants.

TOWNS AND HAMLETS—RURAL RESIDENTS.

After Guayaquil and Quito the largest town in the Republic is Cuenca, the trade center of the south, whose population is between 35,000 and 40,000. Loja, near the Peruvian border, comes next, and in the north Ibarra is the largest city. Its population, however, does not reach 10,000.

The small number of towns which have more than 5,000 inhabitants is usually the basis for the minimum estimate of a total population not exceeding 1,300,000 for the whole country, but this is misleading. The cereal-raising regions of the Andean plateaus and valleys are well settled and the number of Indian hamlets, each of which groups several hundred persons together, is large. A practical means of judging the number of inhabitants in the interior districts has been afforded during the construction of the Guayaquil and Quito railway. In seeking laborers invariably many more would be found than the apparent number of inhabitants indicated, 500 men often being obtained in districts where from the ordinary indications not more than 200 could be expected. The general manager of the railway, from this experience and other observations, estimates the total population of Ecuador at 1,700,000. The difficulties in securing a correct enumeration of the Indians, through their fear of military conscription, taxes, and unknown harm, are well understood. In view of these difficulties and of the experience of the railway management, the probability is that the population of the farming districts and the interior regions has been underestimated. For the whole country it may be considered as 1,500,000, or about 13 persons per square mile.

TRADE ANALYSIS.

With the foreign commerce in commodities taken as $22,000,000 this would mean $14.66 per capita, of which $6 per capita is imports, as will appear from the figures to be given later.' This shows that the bulk of the inhabitants consume little foreign goods, a condition which might be expected of a population so primitive as the native Indians who form the bulk of it. But though a primitive population, the majority are farmers or town laborers, and while they have not yet developed civilized wants in the degree to make them large buyers of foreign goods, the process has begun and its continuance will give importance to Ecuador as a market for manufactured articles.

Ecuador as such a market may be analyzed in Guayaquil, for the trade centers here and the city dominates the commerce of the entire country. It has the advantage of location and this advantage has been utilized to prevent the growth of rival ports so effectively that none of importance exists, though several places have good harbor facilities. Situated on the Guayas River at the head of the Gulf all ocean vessels are able to visit it and freight is received not only for distribution to the interior, but also for the coast towns. The steamship lines from Panama maintain a service which touches at the landings on the north, but the effect in decreasing the importance of Guayaquil by lessening the transshipments is insignificant. Traffic is carried on up the Daule, the Bode, and other tributaries of the Guayas by American paddle-wheel river steamers of 30 to 60 tons capacity, by steam launches of 15 to 20 tons, and by canoes of 15 to 25 tons. Since the building of the railway some change has been made in the routes of transportation to and from the interior, but none of them have deviated from Guayaquil as a starting point or as a terminus, and the city continues both the distributing center for imported goods and for the exportation of the products of the country.

THE COMMERCIAL METROPOLIS.

The relation of Guayaquil to the commerce of Ecuador appears most clearly in the customs-house returns of exports and imports. For the calendar year 1906 the total exports as officially stated were 21,965,000 sucres, or nearly $11,000,000, and the imports 17,012,000 sucres or $8,500,000. (The value of the sucre is 48.7 cents, but in reducing in round numbers to dollars 2 sucres may be taken as equal to $1.) Of the 21,965,000 sucres at which the exports were valued 17,267,000 were through Guayaquil, and of the 17,012,000 sucres of imports 15,768,000 were also through that port. Of the customs duties collected on imports and exports Guayaquil received 6,989,000 in a total of 8,269,000 sucres. In previous years the proportions were about the same.

The substantial monopoly of trade which Guayaquil has held uninterruptedly for many years has made it the wealthiest port on the Pacific in proportion to size and one of the richest cities of the world in proportion to its population. A large amount of capital has been accumulated, the commercial community is a concentrated one, the business being in the hands of a comparatively few strong firms and individuals, and there is usually a surplus of home capital to engage in enterprises which may prove attractive. Yet it is doubtful whether this accumulated capital is performing the service which might reasonably be expected of it. This will appear from a review of the productive resources of Ecuador on which its purchasing power depends.

SOIL PRODUCTIONS.

The products are so largely those of tropical agriculture that when these are described there is little left to mention. They include cocoa, rubber, coffee, hides, vegetable ivory, and fruits. There are also some fibers, the principal one of which is the paja or Toquilla grass that is made into straw hats. Notwithstanding the equatorial climate the cereals are grown in the Andean plateaus at heights of 8,000 feet and upward, but they do not suffice for the domestic consumption. This also is true of sugar cane and cotton.

Cocoa, or the chocolate bean, has become one of the world's food products for which the constantly increasing consumption has insured a steadily advancing price. It is subject to none of the violent fluctuations and drops in value which have made coffee growing so hazardous in most tropical countries. There is no overproduction, and in view of the increased consumption and the limited regions in which cocoa can be grown a good market seems assured for an indefinite period.

COCOA STATISTICS.

Ecuador produces cocoa of superior quality which is always in demand, but its share in the world's production has fallen from more than 30 per cent in 1899, when there was a bumper crop which brought $8,000,000, to less than 20 per cent in 1907. The chief change in the world's crop has been the gain in the Portuguese possessions of West Africa. The Ecuador exports in quantities and values since 1901 have been as follows:

Year.	Quantity.	Value.	Year.	Quantity.	Value.
	Kilos.	*Sucres.*		*Kilos.*	*Sucres.*
1901	23,179,095	9,232,100	1904	18,564,123	11,746,52[illegible]
1902	24,388,416	9,811,400	1905	21,127,383	9,631,27[illegible]
1903	23,005,012	9,546,600	1906	23,126,387	12,198,48[illegible]

In 1856 the production of cocoa in Ecuador was about 700,000 kilos or 1,540,000 pounds, and the value $500,000, so that roughly it may be said that the increase in value of the export crop in fifty years has been from $500,000 to $6,000,000. A poor crop in 1907 has been partly overcome by a further increase in value. The first ten months of the year indicated a probable falling off of 20 per cent in the quantity produced, but this was more than offset by the rise in value. During 1905 the average price of cocoa in Guayaquil, f. o. b., was 60 English shillings (shilling 24½ cents) per quintal of 112 pounds; during 1906, 68 shillings; and for the first ten months of 1907, 94 shillings, or 20 cents per pound. Thus there has been no loss to the country as a whole in the amount received for the total crop, though many individual orchard owners have suffered and the Government has been deprived of considerable revenue, as the export and other taxes are levied on the basis of quantity instead of value. It should also be noted that the customs-house declarations are supposed to be from 20 to 22 per cent below the actual export value, so that $1,000,000 might be added to the statistics in seeking to arrive at the real worth of the Ecuador cocoa crop. From any standpoint this product gives the country $6,000,000 annually with which to make purchases abroad and meet foreign obligations. In 1906 it supplied 12,198,000 sucres out of total exportations of 21,965,000 sucres, about 55 per cent.

LIMITED PLANTING OF CACAO.

In view of the value of the product and the stability of the market, comment is often made on the failure of Ecuador further to develop so valuable a resource, as there is much land in the rich delta region which is as well adapted to cacao orchards as that now under cultivation. This is the more surprising since the causes of the decreased production per orchard and per tree are known to be permanent and these only can be offset by planting fresh orchards and systematically enlarging the areas under cultivation. The increasing dryness of the climate is an established phenomenon; the sands of northern Peru are encroaching on Ecuador and this region must be irrigated, while fresh districts are planted in the delta where the natural moisture in ordinary years is still abundant. The estimates of the new trees planted during 1906 vary from 500,000 to 1,000,000, but this is far from enough.

Absentee landlordism is said to be one cause of the lack of enterprise in providing for new orchards. Many of the owners spend the entire year in Europe, and though their incomes may suffer a slight diminution the increase in the price of cocoa has kept most of them in comfortable circumstances and without incentive to make provision for the future. Another cause of the lack of new planting has been the length of time required to secure returns on capital outlay,

the cacao tree not producing till seven years old and then requiring three or four years more to reach full productiveness. This is perhaps one reason, in connection with the unfavorable climate conditions, why foreigners have not gone more extensively into the industry, but it is not sufficient explanation of the failure of native owners to renew and extend orchards already producing in order to insure compensation for the loss of productivity in trees already bearing. In a few instances foreign capital has met the situation. Two large estates have been organized into companies with headquarters in Hamburg and these are operated very successfully with regard to the future as well as the present.

HIGH VALUE OF VEGETABLE IVORY.

After cocoa the most valuable export of Ecuador is the wild product known as tagua or vegetable ivory, from which bone buttons are made. The value of the crop ranges from $1,250,000 to $1,500,000 annually and, as with cocoa, Ecuador is one of the world's chief sources of supply, the quantity produced being considerably larger than in the neighboring country of Colombia. Substantially all the vegetable ivory exported is gathered from the wild palm tree, since it is not valuable enough to encourage cultivation. It is collected by the Indians, who transport it on their own backs and on the backs of burros and pack mules from the mountainous regions to the coast. If this labor were not of the cheapest kind, the product would not be worth gathering, since it could not sustain ordinary transport charges.

Nevertheless, in connection with other tropical products, tagua is an important element in the natural wealth of the country and also a fairly stable one. In 1870 the exports were valued at $25,000; in 1879, $285,000; in 1889, $250,000; 1899, $460,000; and in 1906, exportations of 21,797,000 kilos brought $1,300,000 as against $1,000,000 received for 19,036,000 kilos in the previous year. Unlike cocoa the price has varied little from year to year.

ACTIVE RUBBER GATHERING.

Caucho, or rubber, is becoming increasingly valuable to Ecuador, the quality of the wild product obtained being good, while expectations are entertained that artificial cultivation will be made commercially profitable. The wild rubber is obtained in the forest regions extending from the slopes of the Eastern Cordillera through the rivers tributary to the Amazon—the Napo and the Putumayo districts, the latter in the zone of boundaries in dispute with Peru.

The lack of means of communication and of access to the region, and consequently of facilities for transporting the product when once obtained, interpose serious obstacles, but they do not prevent adventurous bands of rubber gatherers from disappearing from

civilization for months at a time and reappearing with the product. In the latter part of 1907 an Argentine rubber gatherer took a band of Indians into regions which it was believed never had been reached either from Iquitos and the Amazon or from the slopes of the Andes. Other parties are making similar quests with chances that the Ecuador output of rubber will be increased.

One bad result of the search in these wild regions is the reckless cutting down of the trees. Owing to the remoteness of the districts the authorities find it impossible to prevent this destruction, but with improvement in the means of communication so that the regions are more accessible this waste may be stopped before it entirely wipes out the gum forests. Ecuador has the advantage of possessing the shortest natural route for transporting rubber to the seaboard. This is by means of the navigable Curaray River from a point on which a railroad 120 miles long will secure connection with the existing line to Guayaquil.

The tendency is to measure the value of the crop by its proceeds in 1900 when the price was high and the product was handled at an unusually good profit. In that year 10,031 quintals of 112 pounds each were exported and the price obtained was $1,076,068, or $1.07 per pound. In 1899 the product had amounted to 13,151 quintals, for which $1,333,364 was obtained, but this was only $1 per pound. In 1904 the rubber exports marketed were 480 tons; in 1905, 575 tons; 1906, 620 tons. In 1906 the amount obtained for the crop was $775,000. The product for 1907 is not yet known, but the price was satisfactory. The Government seeks to encourage the cultivation of rubber by giving a bounty on plantations of 500 trees and upward after five years growth of the trees.

COFFEE AND CANE GROWING.

Coffee is grown for domestic consumption and some for export, but this crop is not a factor in the world's markets. The export tax was removed several years ago and when prices are high shipments of the best grade are made to the United States and Europe, but the market on which Ecuador depends is Chile. The nature of the west coast commerce facilitates the interchange of coffee for flour, wheat, and vegetables. The home consumption is estimated at 6,000,000 pounds. The exports in 1905 amounted to 1,579,382 kilos valued at about $400,000 and in 1906 2,657,000 kilos valued at $465,000. An export crop worth $500,000 is not probable unless there should be a very marked rise in price. Under present conditions the only prospect of augmented exports comes from increased Chilean consumption.

While there is much land suitable for cane raising, sugar has never given promise of becoming an extensive industry, though there has

been some development in the coast region. A group of plantations in the Yaguachi district enjoy good transportation and other facilities and have central mills. They are managed on a partially modern basis, being organized into a trust. In other districts the methods of cultivating and grinding the cane are quite primitive. Increased production must depend on augmented domestic demand, for the reason that the raw sugar can not be exported in competition with Peru. When there have been exports this has been because of production above the normal home demand. But the condition more often has been the reverse, and when the tariff duties have permitted there have been importations to make up for the deficient home supply. In 1904 a few hundred tons were exported, but in 1906 the supply, which was 7,000 long tons, was not sufficient for the demand and 1,200 tons were imported from Peru, notwithstanding the protests of the planters against the removal of the duty.

The cane-sugar industry acquires some importance from the by-product of rum or aguardiente. This is distilled in some form in every part of the country, often secretly in order to avoid the taxes, and its consumption among the Indian population is by far too general to be a national good. There are no exports of aguardiente except for special reasons.

TOBACCO, COTTON, AND FRUITS.

Tobacco of fair quality is raised in the coast districts by small landowners, but its cultivation on a systematic scale is not common, though the soil is not unfavorable. In past years it was grown in quantities sufficient for a small surplus to be exported, but this has almost ceased and the crop is limited to the domestic consumption, which is about 4,500,000 pounds annually. The exports in 1906 were 140,000 pounds valued at $11,000.

During the civil war in the United States cotton was grown in Ecuador for export to Lancashire. When the war ended and the price became normal this cultivation ceased and it has not since been resumed on a large scale, though there is a large area in which the soil is suitable. The present production is not always sufficient for the few native cotton mills and during the past year some raw cotton has been imported by them. The possibility of cotton again becoming an export crop is too remote to call for further consideration.

Tropical fruits, especially oranges and pineapples, are grown plentifully and their cultivation could be greatly augmented if the demand could be created for them, but the markets of the north are not accessible since transshipment across the Isthmus of Panama would be necessary. The country is therefore limited to supplying its west coast neighbors, Peru and Chile, the bulk of the trade being with the latter. This commerce is important enough to encourage

the establishment of a fast line of small refrigerator steamers which has been proposed by an American company.

GRAIN AND STOCK RAISING.

Ecuador heretofore has not produced the cereals in quantities sufficient for the needs of its own population, though with better means of distributing the crops of wheat, corn, barley, etc., which will come from the railway making the isolated districts more accessible, there will be some increase in the crops grown. This will not be for export.

Rice is grown in the delta districts of Yaguachi and Guayas and in some years there have been small exportations, but this was due usually to quantities of imported rice from China and India, of which there was an overstock. Rice is the food of the poorer classes, cheapness is essential to it, and since the imported article can be sold cheaper than that of native production its cultivation offers little probability of being extended.

Cattle raising is one form of agricultural industry that affords something for export as well as for native consumption. Grazing lands are abundant both on the coast and in the plateaus and valleys of the interior. Hides command remunerative prices and the exportations vary from $350,000 to $400,000 annually. A few thousand dollars' worth of goatskins are also exported and a larger amount of alligator hides.

In the inter-Andean regions sheep are raised both for the mutton and for the wool. The equable climate makes the conditions ideal. The mutton is of good quality, but more regard is paid to the fleece. The wool is not so good as that from sheep in the northern regions, but it is good enough to figure in the world's wool market if it were produced in quantities sufficient for export and this could be done by increasing the flocks, for which there is ample room. All the wool now produced is utilized for the local needs, most of it being woven into a coarse baize cloth.

AVAILABLE FORESTRY PRODUCTS.

Ecuador has timber resources and some dyewoods and fibers including the century plant, but none of these figure largely in the foreign commerce. These resources are, however, utilized for domestic purposes. Guayaquil is a city of bamboos and cane reeds covered with mortar and plaster, the use of pitch pine being forbidden as a precaution against fires.

The kopal or cork tree is used in the local boat-building industry and the balsas or native rafts are entirely constructed of it. The remarkable qualities possessed by this wood have been frequently described. It is obtained in the immediate neighborhood of Guayaquil and for a hundred miles or more up the rivers. The tree grows

to a height of 175 feet and from the trunks logs of 70 to 75 feet in length are obtained. The wood is exported to Peru and Chile for use in the barren coast districts which are treeless, and recently some shipments have been made to Great Britain and to the United States for testing in the construction of naval vessels, with satisfactory results. This tree is also known as the ceiba or cottonwood, and from it is obtained the fine fiber known as silk cotton.

Bamboos or bamboo splits are exported to the nitrate region of Chile for building purposes similar to the use made of them in Guayaquil. A more valuable forest product is the guayacan, a species of lignum vitæ. This hardwood exists in abundance and has special utility for railroad ties, but it has not yet become an export commodity. Most of the ties for the Guayaquil and Quito Railway were imported.

MINES AND MINERALS.

The value of Ecuador's mineral resources is yet problematical. They consist in gold and unexploited coal deposits. In the north or Esmeraldas district large sums were spent by British capitalists in exploiting the Playa de Oro properties, but without result, and these were definitely abandoned in 1906. In the south better success has attended the large investments made by American capitalists. The South American Development Company, a New York corporation, is enlarging its facilities for working the low-grade ores of the Zaruma district, and shipments of gold bars and concentrated cyanide slimes are now being made regularly. The total of these exportations for the recent year is reported to be about $250,000, of which $100,000 was gold bars and the balance cyanide slimes. The slimes, which consist of gold, silver, zinc, and iron, are shipped to San Francisco for treatment. The prospecting that has been done indicates valuable ore deposits in southern Ecuador, but the conditions are not such as to invite the heavy investments of capital necessary for their development until transportation facilities are improved by getting railroads into this region.

COAL AND PETROLEUM DEPOSITS.

It has been demonstrated that the coal deposits which lie near the main line of the Guayaquil and Quito Railway on the Columbe River, and which it was expected would furnish fuel, can not be worked. There were vertical outcrops with veins varying in width from 18 inches to 5 feet. The veins were reached by a tunnel from the base of the mountain and by cross cutting. It developed, however, that in this region of heavy landslides the mountain is still in motion and the coal veins, which lie between clay and solid rock, are constantly

being ground to powder, so that their exploitation is not feasible. Coal beds about 60 miles distant are not subject to this process and later a branch of the railroad may be built to them at an estimated cost of $3,000,000. But in view of the conditions coal is not likely to become an article of export from Ecuador.

Petroleum exists in the sandy coast strip of Santa Elena and the crude product is extracted and utilized for fuel by the brewery and the electric-light companies of Guayaquil, but for illuminating and lubricating purposes it is cheaper to make importations than to extract it from these fields. There is also some asphalt, which is not sufficiently promising to exploit for commercial purposes. The salt mines, which are operated as a Government monopoly, supply a small quantity for export to Colombia, in addition to meeting the domestic demand.

NATIONAL INDUSTRIES.

Toquilla straw or paja is one of the most valuable agricultural resources that the country possesses, but as it is the basis of manufactured articles of export I have reserved the subject for separate consideration. It may be said to be the one national manufacturing industry of Ecuador, though not a factory one in which machinery can be used, since its nature requires handicraft in making the hats and it always will be a cottage industry.

The conditions governing the production of the straw and the manufacture of the hats have been so well and so fully described by Consul-General Dietrich in his various reports that the relation of the straw hat to foreign trade is all that calls for consideration on my part. Hat making for export has always been carried on, and as far back as 1857 there were exports to the value of $150,000. These rose and fell through various causes and it is only since 1900 that the foreign market has been firmly established, the demand being, if anything, in excess of the supply and prices having risen more than proportionately to the increase in the cost of the raw material. In 1900 the total value of the hats exported was $150,000, or about what it had been in 1857. In 1903 the value of the manufactured hats exported was $350,000; in 1906, $1,125,000, and for 1907 the estimate is from $1,400,000 to $1,500,000. The growth of this cabin or cottage industry appears to be limited only by the production of the raw material which is its basis. The exports form a notable national asset in providing the means for foreign purchases and the manufacture of the hats adds materially to the resources of some thousands of persons who are engaged in it, particularly in the districts of Cuenca and Manta.

VARIOUS SMALL FACTORIES.

Ecuador hardly can be said to have other national industries. In Guayaquil there are small boat-building and ship-repair yards and foundries, breweries and ice factories, cigar factories and candle and soap factories, as well as a confectionery establishment and a small sugar refinery, yet these can not be considered more than local industries. The cotton mills at Otovalo in the north have been successful with the native labor, but the example has not been followed by establishing mills in other sections, and their output is for neighborhood consumption, the cloths rarely being seen in Guayaquil or Quito.

At several places in the interior there are flour mills which grind the wheat of the districts in which they are located, but all of these are operated on a modest scale. Breweries are established in Quito and Cuenca and there is little else in the way of manufactures. It is clear that for a long period yet to come Ecuador will not be a market for installations of machinery with which to supply the means of providing for its own wants; but will continue to purchase manufactured articles and some foodstuffs with the proceeds of the cocoa, the vegetable ivory, the rubber, coffee, hides, and hats that are exported.

RAILWAY SYSTEMS.

How far the exports may be increased and also the imports depends on various considerations. The possibility and the necessity of adding to the cocoa and other agricultural crops I have already indicated. Another phase of the same subject relates to the encouragement to be given to production by providing the facilities for exchanging and marketing the products of the country. The most important of these is facilities of transportation and among them nothing approaches railway systems in importance.

The one central system which Ecuador possesses is the Guayaquil and Quito Line, better known as the American Railway, since it has been built and is operated by Americans. Its construction has taken ten years, and at this writing the rails have been laid so near to Quito and the trains are running to within so short a distance of the capital that the central line may be considered as finished. The distance from Duran, on the Guayas River opposite Guayaquil, where extensive terminal facilities have been constructed, to Quito is 290 miles.

The railroad crosses the productive tropical plains of the delta and strikes abruptly into the canyons of the Cordilleras, reaching the inter-Andean plateaus where the cereals and other products of the temperate regions are grown, though on the equatorial line. These crops are produced and flocks are pastured at elevations ranging from 5,000 to 12,000 feet. The railroad gage is 3½ feet. The heaviest

grade is 5½ per cent. While there are many bridges both of stone and of iron and steel there are few tunnels. The most serious of the many obstacles to railway building which nature had interposed were overcome by means of a switchback up the Pistichi Mountain, better known as the Devil's Nose, and the bold Alausi loop. The heart of the Andes is penetrated 2 miles above sea level, or at about 10,650 feet, in the Palmira Pass; but the flanks of the giant extinct volcano Chimborazo are traversed at an elevation of 12,000 feet.

OPPOSITION AND BENEFITS.

This brief indication of the engineering features of the railway is equivalent to stating that it has been a costly piece of mountain railway construction, but this subject need not be gone into. The significance is that at the beginning of 1908 Ecuador has a railway which has crossed the Andean wall and brought the interior into quick and direct communication with the coast. Its economic and commercial effects have not had time to be demonstrated, but one result has been to improve the material condition of a section of the population by the chances it has given for work at good wages.

This has aroused the opposition of some of the great landowners, who until the coming of the railway were able to employ the peons for a few cents a day. The shifting of freight from mule pack trains and bullock carts to the railway cars, a process which is still going on, also has caused opposition and this opposition, as in the case of the landowners, has been manifested somewhat violently. But such incidents are temporary and do not interfere with the real utility of the line as a means of distribution for freight and of development of new traffic that the mules and the bullock carts never could have created.

One of the earliest results of the railroad has been to provide better means for distributing the cereal products of the isolated districts among one another and also to enable these products, whenever there is an excess above the local demand, to be brought to Guayaquil and the coast. Wheat is not yet produced in quantities sufficient to render the importations from Chile and California unnecessary, but barley and alfalfa have already found a valuable outlet. On imports the effect of the railway will be very beneficial, for it will enable the manufactured articles to be transported to the interior more cheaply, and when the price, in which transportation heretofore has been so heavy a factor, is cheapened, the consumption will increase.

EXTENSIONS AND PROJECTS.

These effects will further be felt when the north and south extensions of the railway which are part of President Alfaro's general

project are carried out. These include a line from Cuenca in the south, 95 miles, to join the Guayaquil and Quito at Huigra, and a branch north to Ibarra, 100 miles from Quito. The commerce of the southern district is large and on this account the Cuenca branch will be the first one to be built.

A line from Ambato on the Guayaquil and Quito Railway to the Curaray River, whose waters are navigable to the affluents of the Amazon, also has been surveyed. The distance is 120 miles. The condition of the national finances does not indicate that any of these lines is likely to be of immediate realization, yet with the central trunk in operation, these north and south feeders are certain to be built ultimately. In the meantime the improvement of the cart roads and the mule trails in order to reach the existing railway more easily is assured to the benefit both of the internal commerce and of imported merchandise.

Other railway projects have for their object the connection of the minor ports with the producing territory back from the coast. There are five of these projects: From Puerto Bolivar to Machala, from the Bay of Caraquez to Choné, from Manta to Santa Ana, from Salinas to some point on the coast near Santa Elena north of the Gulf of Guayaquil, and from Santa Rosa to Zaruma. Little progress has been made with any of them. Some rails which had been paid for with public funds were laid in the Bahia cacao district toward Choné, but the work was abandoned. On the line between Puerto Bolivar and Machala there has been some extension into the cacao districts and to provide for the seacoast traffic.

PUBLIC IMPROVEMENTS.

The corollary to the completion of the Guayaquil and Quito Railway across the Andes to the capital should be a well-matured plan of public works and particularly of sanitary works if Guayaquil and the whole country are to reap the full benefit of improved transportation facilities. This is of especial importance both to the import and the export trade. Commerce now pays heavy tribute to the unsanitary conditions. Steamers are compelled to anchor well down the river at a point opposite the Matadero or slaughter house, and it is estimated that the Guayaquil merchants pay $200,000 a year for lighterage which might be saved.

The interruption of west coast traffic which is experienced with the bubonic plague always threatening and yellow fever always existing would justify a heavy expenditure jointly by the municipality and the national Government in order to put the port into sanitary condition by permanent works which would insure the continuance of that condition. Bubonic plague has not yet invaded

Ecuador, but it is an ever-present menace, and the yellow fever record of Guayaquil, with its heavy percentage of fatalities for foreigners, is common history. Smallpox also is frequently epidemic, with a larger number of deaths than is credited to yellow fever, and from this disease the natives are not exempt. Its ravages are chiefly among them.

SANITATION PLANS AND WATERWORKS.

Plans have been prepared under the direction of the board of health for a very complete system of sewerage, paving, and other improvements, which if carried out would go a long way toward the sanitary reconstruction of Guayaquil, and whether put into effect or not the information published in connection with them affords valuable suggestions. The idea is that a company or syndicate may be formed to undertake the work or to provide the necessary funds under an arrangement with the municipality of Guayaquil. If this project should be carried out the improvement in the general health conditions undoubtedly would be of much benefit to commerce.

However, it does not fully meet the situation as to yellow fever, as there is no provision for control by preventing the mosquito infection as has been done so successfully by the United States authorities on the Isthmus of Panama. By putting into practice the regulations of the international Pan-American sanitary convention, through a treaty or other arrangement which would permit the cooperation of the United States sanitary authorities, Guayaquil could be shielded against yellow fever and other epidemics as effectively as are Panama and Colon, and the gain to commerce in general and to Ecuador's commerce in particular would be immense.

That the municipality is capable of meeting the situation, if it chooses, is shown by what it already has done in the way of public works. An American contracting engineer brought water down from the mountains and under the river, thus providing the city with a complete system of waterworks, which insures a sufficient supply at all times. The destructive fires which swept the city at regular intervals have been minimized by rebuilding with streets not less than 100 feet in width and the installation of a pumping system that has proved very effective and has caused the heavy premiums formerly paid for fire insurance to be materially reduced. Garbage crematories of the most modern kind have been installed for the disposal of the city's refuse. These improvements show that public spirit is not lacking. All that is needed is for this public spirit to be directed into the broader channels which will make Guayaquil a healthful port and insure to it the benefits of the commercial advantages which its geographical position on the west coast gives it the opportunity to realize.

FOREIGN COMMERCE.

Since I have described the products of Ecuador which form the basis of its foreign purchases, the international commerce may be studied in its entirety before analyzing in detail the country as a market for foreign goods. Statistics are somewhat backward, but the full details for the calendar year 1906 are given and it may be said that the general movement of importations and exportations during 1907 showed no marked variation from the previous year. Following are the figures for 1906 (the value of a sucre being 48.7 cents):

EXPORTS.

Articles.	Value.	Articles.	Value.
	Sucres.		*Sucres.*
Cotton	12,900	Gold ore and bars	320,432
Cocoa	12,198,484	Gold specie	547,003
Coffee	931,369	Silver coins	7,000
Cascara bark	29,150	Straw hats and straw	2,390,510
Rubber	1,546,189	Tobacco	22,113
Hides:		Tagua (vegetable ivory)	2,615,337
Cattle	722,703	Miscellaneous	503,436
Goat	4,422		
Alligator	11,909	Total	21,964,716
Fruits	108,796		

IMPORTS.

	Sucres.		*Sucres.*
Alimentary articles:		Railway and telegraph material, locomotives, etc	929,354
Animal	1,371,032	Tobacco and cigars	5,553
Vegetable	1,244,298	Mineral and metallic substances	74,498
Mineral	314	Articles for the fine arts, scientific instruments, etc	310,922
Textiles	3,533,208	Drugs and medicines	518,841
Raw material:		Firearms and accessories	136,577
Animal	205,028	Specie and bank notes	1,982,910
Vegetable	181,960	Miscellaneous	623,402
Mineral	124,915		
Vestments, fine cloths, jewels, and articles of personal adornment	1,540,834	Total	17,011,695
Machinery, tools, and instruments	1,975,759		
Household furnishings, articles of domestic use, furniture, etc	1,598,821		

The total imports and exports amounted to 38,976,319 sucres.

It will be observed that specie and bank notes figure in the returns as part of the commercial movement. To get at the merchandise they should be eliminated. Thus with the gold and silver coin which was exported during 1906 to the amount of 554,571 sucres deducted, the total exports should be 21,410,143 sucres. Similarly, with the 1,982,910 sucres of specie and bank notes which figure in the imports deducted, these would amount to 15,028,695 sucres, showing that the commodities purchased are considerably less than those which are sold. Yet this apparent loss in merchandise is made up by the addition of 20 per cent to the valuations as given in the official statistics, which the mercantile community of Guayaquil is in the habit of making to both exportations and importations, in order to arrive at the true value of the foreign trade. With these deductions and additions allowed the movement of merchandise in and out of Ecuador during 1906 would be $22,000,000.

The commerce by countries in 1906 is exhibited in the appended tables, as shown by official statistics:

Country.	Imports.	Exports.	Country.	Imports.	Exports.
	Sucres.	*Sucres.*		*Sucres.*	*Sucres.*
United States	4,656,895	6,785,089	China	55,221	
Germany	3,095,144	3,595,716	Spain	492,224	1,004,529
United Kingdom	5,560,343	1,327,505	France	1,275,797	6,821,211
Argentina	856	132,012	Holland	545	73,100
Australia	9,770	200	Italy	521,684	343,572
Austria	40,875	115,065	Mexico		43,441
Belgium	776,248	15,325	Peru	205,953	683,563
Bolivia		1,000	Panama	5,890	35,020
Brazil		10,000	Uruguay	7,110	20,725
Central America	54,773	40,797	Venezuela		5,995
Colombia	49,664	27,413	Norway		6,000
Cuba	4,041	40,450			
Other West Indies	20	15,038	Total	17,011,605	21,964,714
Chile	198,552	818,698			

SHARE OF LEADING COMPETING NATIONS.

The imports from the four leading countries may be studied from the following comparisons for a series of years, with the explanation that specie, which is drawn principally from England, is included:

Year.	United States.	United Kingdom.	France.	Germany.
	Sucres.	*Sucres.*	*Sucres.*	*Sucres.*
1900	3,434,430	3,974,807	1,240,677	2,577,290
1901	3,966,308	3,575,100	1,995,693	2,712,467
1902	2,982,660	5,750,785	1,588,030	2,085,900
1903	2,893,537	3,196,481	1,011,738	2,000,001
1904	4,897,848	4,009,757	1,234,516	2,985,114
1905	4,542,272	4,558,547	1,118,793	3,101,957
1906	4,656,895	5,560,343	1,275,797	3,095,144

Some features of this trade as distributed among the various countries call for explanation. While the imports from the European nations can be rather accurately accounted for, the exports do not measure the real commerce of Ecuador with several of them, because so large a proportion is taken "for order" and distributed from Southampton, Havre, or Hamburg. Thus in 1906 of the imports credited to France—6,821,000 sucres—cocoa constituted 6,072,000 sucres, and it is known that Germany and other continental countries reimport it from France in large quantities, Germany in particular supplementing its own direct importations from Ecuador.

In the imports Great Britain supplies much less of the merchandise than would appear, since the imports of specie are almost entirely from that source and in 1906 the importation of sovereigns was £200,000 or 1,000,000 sucres. Similarly, specie to the amount of 547,000 sucres should be deducted from the exports to Chile and Peru in order to measure the merchandise exports to them correctly, since both these countries draw English sovereigns from Ecuador.

AMERICA THE BEST CUSTOMER.

The trade of the United States and Ecuador is not subject to the deductions or additions which are necessary in the case of other countries. The Ecuador products imported into the States are consumed there and the exports to Ecuador consist of general merchandise—specie exports being rare. The total trade in 1906 approximated $6,000,000. The United States is a large buyer of all the leading Ecuador products. In the year for which the statistics are given it took cocoa to the value of 2,369,000 sucres; rubber, 1,209,000 sucres; hides, 640,000 sucres; tagua or vegetable ivory, 638,000 sucres; and straw hats, 1,133,000 sucres. Its position as the best buyer of Ecuador products fairly entitles it to be the largest seller to that country and it maintains the geographical advantage. The bulk of the commerce both ways is through New York, but Mississippi Valley products are shipped through New Orleans to the value of $250,000 yearly and San Francisco and the other Pacific coast ports have a direct trade.

Germany, which is a heavy buyer of vegetable ivory, cocoa, and straw hats, clearly is next to the United States in the actual exchange of commodities though the statistics appear to give France the lead by reason of the cocoa imported for transshipment. Great Britain, after the deduction of specie shipments, is still able to show commodities exported to more than twice the value of those imported. Its control of the cotton piece goods trade is the basis of this advantage as compared with other countries. It also ships coal and a variety of iron and steel products. Its largest purchase is of cocoa, the amount being 800,000 sucres, and after that straw hats, 300,000 sucres. France in addition to the cocoa imported for consumption and distribution takes vegetable ivory to the value of 374,000 sucres and hats, 135,000 sucres. China and Australia provide a small trans-Pacific trade, rice and silks being imported from China and coal from Australia.

NEEDED IMPROVEMENTS.

In considering Ecuador as a future market the prospect or the probability of public works such as harbor improvements and the sewerage and sanitation of Guayaquil must be taken into account, but this can not be done with definiteness. A new market house has been constructed in Guayaquil but nothing has been done toward the new custom-house. The extensive iron pier and wharf and similar improvements for which concessions have been given by the National Congress to various parties at different times make little headway. When these works and others like them are once entered upon it will mean a decided demand for iron and steel products. In the meantime some public works in other cities are in a more promising state. Quito has an insufficient water supply and a new system of water-

works is declared to be imperative. A contract was made for the system, but it has been in abeyance. Now there is said to be a prospect that it will be put into effect. In the town of Riobamba a contract has been made with an American engineer for a system of waterworks.

AMERICAN MILLS COULD NOT ACCEPT ALL ORDERS.

The importation of steel rails and railway material may for a time show a falling off as compared with 1906 and 1907. The completion of the Guayaquil and Quito line to the capital probably will be followed by the construction of some short spurs and extensions in the delta district, but until the building of the larger branches from Cuenca and Ibarra, respectively, to the main line is begun, or the Government finds itself in a position to finance the Curaray River branch in order to get to the rubber district of the navigable tributaries of the Amazon, large purchases of rails and railway material are not to be expected. The Guayaquil and Quito Railway has been supplied with American rails and rolling stock except when the inability of the mills of the United States to fill the orders in time caused some purchases to be made abroad. While there will be some falling off in rails this loss will be likely to be made up by gains in other iron and steel products. Should the price of rails drop that also may encourage the revival of some of the projects for railroad building. With the freight and other charges the rails for the Guayaquil and Quito line cost on an average $36 per ton laid down on the wharf at Duran.

GENERAL DEVELOPMENT.

Electrical installation is likely to be continued on a larger scale than during the past. Up to the present time there have been few electrical power plants established, though the available force abounds in the waters of the Andes. Guayaquil has an electric-light system which is utilized in business blocks and private dwellings and on the wharves and river landings, but the streets are lighted by gas and the change to electricity awaits the convenience of the gas company, which has shown no disposition to forego the advantages of its contract with the municipality unless compensating concessions are made. So also the company which proposes to substitute the trolley for horse cars has not yet been able to put into effect an arrangement for electrifying the tramways. But these changes are sure to be made.

A project has been formed by Ecuadorian and American capitalists for transmitting power to Guayaquil from the Chimbo River, 55 miles distant, which will be ample for lighting, traction, and such light manufacturing as exists. When this installation is made the purchases of machinery will be an important item.

The Anglo-French company which has the electric power concession in Quito has extended its plant and the facilities for illuminating the city have been enlarged and the number of lights increased. A more important extension is the projected trolley tramway system. The hilly streets of this ancient capital of Inca civilization have to be traversed on foot just as in the time of the Incas. Many of the streets are too steep for vehicles and a horse-car system would be impracticable. So up to the present the only means of getting about has been by strenuous pedestrianism. Work will be begun on the trolley installation during the year.

INTRODUCTION OF MODERN MECHANISMS.

Some of the smaller cities may follow the example of Guayaquil and Quito and provide for electric lighting. Extensions of the Government telegraph and telephone lines will be made and there is a slow spreading of local telephone systems. Cooling appliances are quite common in Guayaquil. Most of the electrical installation of all kinds, even where European capital is engaged in the enterprise, is made by American companies and the setting up of new plants means increased importations from the United States.

Agricultural machinery is one of the lines for which markets are yet to be created in Ecuador Irrigation plants are vaguely comprehended, but some Ecuador landowners look forward to introducing them in the southern coast section of the country where the cocoa production is falling off so markedly on account of the increasing dryness of the climate. That this change would come had the authority of as high a scientific authority as Alexander von Humboldt a century ago. Now it is coming with a swiftness that enforces the necessity of turning to artificial means in order not to lose the richness of a soil whose productivity has been demonstrated through a long series of years.

Suggestions have been made for pumping plants in the Santa Rosa district where the drying up of the coast lands is most noticeable and the sands are encroaching most rapidly on the alluvial soil, but there is no definite project. Makers of irrigation machinery in the United States might find it worth while to send an expert to study this region and provide local landowners and capitalists with specific statements of the kind of plants which should be installed and estimates of the expense, for the landowners, while recognizing the agricultural situation, are slow to act on their own initiative.

LEADING MERCANTILE IMPORTS.

Thrashing machines and even harvesters are not likely to find a *market* soon, though some of the grain fields in the inter-Andean plateaus are extensive enough to call for them. But the owners of the *big* estates are satisfied with the results they obtained from the cheap

labor of the peons through scythe and sickle and hand flail. For plows there is a better prospect. The Indian cultivator still clings to the wood prong both for turning up the soil on his own little patch of the mountain side and on the larger farm of the landowner. In the majority of the regions of the interior no other kind of plow ever has been seen. Yet the railway is already working a change. At Ambato, which is the center of a somewhat sandy agricultural district, some modern plows are in use and they are employed in a few other districts. Dealers in Guayaquil now keep them in stock and seek to interest their customers in them.

In farm hand tools there is a fair use of those of American manufacture, but this trade is divided with England and Germany. High-quality machetes of New England make control the market in the coast region where the sugar plantations are. Hoes and adzes are imported chiefly from Germany and England and shovels from England and the United States. Axes and hatchets are from the United States. There is a growing use of wire fencing both barbed and woven, with a tendency to favor the woven wire.

Machine tools, while not extensively used, find a good market, and the bulk of them are from the United States, though some of fine grade are imported from France. Ecuador natives are noted for their skill in woodwork and carpentry. Lathes, drills, and chisels of good quality are therefore acceptable to them. The best Philadelphia handsaws also find a market, though the change of some of the local industries to steam sawmills has partly diverted the demand to saws of that class.

HARDWARE, SEWING MACHINES, AND MOTORS.

The market for builders' hardware is a good one, yet largely local in its character. During 1907 some 300 new houses were built in Guayaquil, though many of them were not large ones. But all of them call for more or less builders' hardware and much of this is supplied from the United States. Wire nails are almost an American monopoly, but in bolts, locks, keys, etc., England and Germany compete with the American articles. The use of sheet-iron roofing is growing in the interior as well as on the coast. The United States is getting a little of this trade, but can hardly expect a large share until the price is lowered to a level with the English quotations for corrugated iron. England also has a fair proportion of the trade in iron bars, tubes, and tinplate. American manufacturers do not appear able to meet the English prices for cheap iron cots and bedsteads, for which there is a very good market. England sells some tinware and cutlery, but Germany has the advantage in most of the articles of household hardware, though not to the exclusion of the United States.

The Guayaquil dealers make attractive displays of the different lines of machine tools, builders' hardware, cutlery, etc., and American manufacturers find it advantageous to exhibit complete sets of their manufactures in this manner.

There is some competition in the sale of sewing machines, but it is not strong enough seriously to affect the purchases from the United States. Typewriters and iron safes are of course of American manufacture. Printing press machinery is from the United States. Some of the Guayaquil newspapers have the latest improved presses and one of them has introduced linotypes.

Good roads are not extensive enough to provide a large market for motor vehicles, but there is a field for them. The national highway from Quito to Ambato, 75 miles, is kept in repair by an automobile transportation company under arrangement with the Government, and owners of private motors have the benefit of this arrangement. American motors were the first ones introduced into Eucador, but the French makers came into the market and for a while controlled it. Now motor cars from the United States are again being imported. Motor boats have not come into vogue, though they would naturally supplement the steam launches which are imported from the United States for use in the Guayaquil Harbor and the rivers where the native balsas or rafts ply.

AMERICAN TEXTILE TRADE LOSS.

The trade in textiles is one on which the United States has little reason to congratulate itself. At one time in Ecuador the trade in prints meant American prints. Now cotton piece goods are almost a Manchester monopoly. The story is told in the customs-house returns of importations, which have this item: "Cotton cloths in general, Great Britain, $500,000; United States $25,000." Such headway as has been made by other countries in getting a small share of this market has been by Germany and Italy. The United States still sends some sheetings, drills, and coarse prints, but with little regard to the special requirements of the market, which are the same as in other South American countries where both the torrid and the temperate climates obtain and the fondness of the natives for bright-colored and gaudy cloths governs their purchases. Some drills are supplied from England that could be furnished as well by the United States. Baizes and ginghams, for which there is a good demand, are controlled by Manchester. Italy and Germany supply casinettes. Germany divides with England the trade in cotton blankets and England supplies the sewing cotton and the satin.

In textiles other than cotton England and Germany are the principal competitors and their competition is with each other. Eng-

land supplies the larger share of the cashmeres and linens and Germany the woolen shawls and ready-made clothing. Stiff hats are from England, which also furnishes carpets and jute bagging. Italy has most of the trade in felt hats. Silks and fine dry goods, for which the demand in Guayaquil is considerable, are imported from France, but silk and cotton mixtures are chiefly from England, and silk mantillas are imported from China. German hosiery has the market for this class of goods.

LEATHER GOODS AND FOODSTUFFS.

A variety of leather goods are imported, including trunks and valises from England and saddles from the United States. The petaca or small leather trunk which is so essential for mountain traveling is manufactured locally to a small extent, but the material is imported. Germany, France, and the United States supply the tanned leather, Germany having two-thirds of the trade. American boots and shoes continue to hold the favor they gained some years ago, and this market is worth $150,000 annually. Imitations of the American styles have been attempted and importations have been received from Spain which were sold at a lower price. But the quality was inferior and notwithstanding that the American style was adopted the fit was unsatisfactory. The hot and humid climate deteriorates leather goods rapidly, and this is one condition which makes it desirable for the American boot and shoe factories to maintain the quality.

In foodstuffs and provisions the United States has no strong competitor. Wheat flour is occasionally shipped by Chile, but not in large quantities. The American importations in some years amount to $250,000, while a few thousand dollars' worth of corn meal is taken and small quantities of oatmeal and breakfast foods. Lard is supplied entirely from the United States, the value of the imports in 1905, which was an average year, having been $330,000. Hams, bacon, and other packing-house products are imported in small quantities and there are some importations of tinned goods. The imports of cotton-seed oil from the United States in 1905 were valued at $1,500 and olive oil from Italy, Spain, France, and other European countries at $26,000. Italy supplied butter and cheese to the amount of $35,000. Vegetables of various kinds, peas, beans, lentils, onions, are imported from Chile.

BEVERAGES, OILS, AND DRUGS.

The trade in wines, liquors, beverages, and mineral waters is rather curiously distributed. Notwithstanding that there are local breweries the imports of beer have increased, possibly because of the lowering of the duty. This trade is divided between Germany and

the United States, about 75 per cent of it being held by Germany. In cognac and cheaper brandies and champagnes France has nearly all the business. Whiskies, of which the imporations are small, are divided between Scotland and the United States. Ordinary wines are from Spain, France, the United States, and Italy in the order named. Italy has the monopoly of vermuths. Small quantities of mineral waters are imported from Germany, France, and the United States.

In petroleum and other oils, paints, varnishes, medicines, and drugs and chemicals, the United States holds a leading place. Petroleum is supplied to the exclusion of other countries. Drugs and medicines from the United States in 1905 were more than double the imports from all other countries. Fine soaps are furnished by Belgium, Germany, and France in the order named, but some toilet soaps and perfumes of American make have an established market which they hold in spite of competition. The trade in stearin candles to the value of $150,000 annually is in the hands of Belgium and Germany.

FURNITURE OPPORTUNITY.

In the long list of miscellaneous articles there are some of which a larger quantity could be supplied by the United States. One of these is furniture. Germany now has this market. Paper and its manufactures are also staple imports from Germany. The United States supplies printing paper but does little in writing paper and similar stationery. In earthenware, crockery, glassware, porcelain, and similar household articles the trade is almost entirely in German hands. The United States supplies more lampware than Germany. Cheap enamel ironware is not in extensive use, but the bulk of what is used comes from Germany. Belgium and France supply some fine crystal ware. Among other household articles the United States is the source from which brushes and sweeping brooms are drawn. Sanitary appliances are from England and the United States. Pianos and other musical instruments are from Germany. Common muskets are imported from Spain and France, revolvers from Spain and England.

SHIPPING SITUATION.

The commercial movement of Ecuador as to shipping might be divided geographically into the trans-Pacific trade with Australia and China, which is not of much importance; the coast Pacific trade from Portland and San Francisco and intervening ports on the north and from Valparaiso and intervening ports on the south; and the trade via Panama and the Straits of Magellan, respectively. The bulk of the traffic is by the latter two routes, though the coast Pacific trade is considerable, covering as it does the cargoes to and

from Oregon and California, Mexico and Central America, and Peru and Chile.

The nationalities of the vessels which have the carrying trade of Ecuador appear from the following exhibit of the Guayaquil shipping for two years:

Nationality and class.	1905.		1903.	
	Number.	Tonnage.	Number.	Tonnage.
British steamers	106	172,141	97	153,116
British sailing vessels	2	2,680	3	4,787
Chilean steamers	53	83,820	51	85,272
German steamers	36	78,421	33	88,495
French steamers	3	7,801	3	9,590
Norwegian	2	3,858		
Foreign sailing vessels	10	6,737	8	8,813
Total	212	358,548	195	350,073

The British vessels are chiefly those of the Pacific Steam Navigation Company which ply between Panama and Valparaiso, and the Chilean steamers are of the Compañia Sud Americana de Vapores, which follow the same route. The German ships are mostly of the Kosmos Line, whose itinerary is from Hamburg to San Francisco, though there are also some direct voyages of German ships between Hamburg and Guayaquil. The other vessels indicated come under the designation of the "tramps" which compete with the regular liners, and some of the ships of British and German nationality belong in the same class. The Lamport and Holt and the Gulf Line and the Merchants Line from New York dispatch occasional vessels by way of Magellan Straits.

TONNAGE MOVEMENTS.

Measured by actual freight tonnage the shipping of Guayaquil in 1906 amounted to 70,000 tons, of which 5,000 tons was local coastwise traffic. In the import cargoes there figured 14,000 tons of coal brought by both steamers and sailing vessels and 3,000 tons of railway material. There were 6,000 tons of merchandise for coast ports other than Guayaquil. Exports were 32,500 tons, distributed as follows:

	Tons.
South American coast ports	5,500
North Europe via Magellan	8,500
North Europe via Panama	9,400
United States via Panama	7,500
Spain via Panama	1,600
Total	32,500

Freight imported via Panama was 7,500 tons and by way of Magellan an equal quantity. The noticeable feature of the shipping is that the traffic by way of the Straits is decreasing relatively and

that via Panama is increasing both relatively and absolutely. During 1904 and the early part of 1905 there was an increase of the cargoes brought through the Straits and several of the steamship lines added to the number of their vessels using that route, but this was checked by a temporary cause which has a permanent effect. The prevalence of the bubonic plague at some of the Atlantic as well as the Pacific ports has proved a serious interference with shipping. Vessels coming through the Straits are fumigated at one of the lower Peruvian ports and then if they proceed to Guayaquil another fumigation is required before they will be received. These fumigations are both costly and vexatious. While the bubonic plague has thus had a tendency to divert cargoes from the Magellan route it has not been the leading cause. Guayaquil is only 835 miles from Panama, and Panama is the natural route for the bulk of the commerce of Ecuador. Shipping facilities and freight rates on the west coast have been discussed very fully in two official reports which review the whole situation.[a]

INADEQUATE STEAMSHIP FACILITIES FROM PANAMA.

The information given in those reports has a special interest for Guayaquil since it is one of the leading west coast ports. This information need only be supplemented by again stating that notwithstanding the nearness of the ports of the United States no advantage is had in shipping rates and European shippers appear able to neutralize the advantage American shippers have in time and distance. A more important matter is the inadequacy of the existing facilities to provide for the increased traffic via Panama and the increased trade generally. Guayaquil merchants complain of the losses to which they are subject by the delay and uncertainty in receiving the consignments and in this they have common ground with the merchants of other west coast ports.

Whatever the situation in the past may have been, I have heard no complaints that the Panama Railway now fails to get the freight across the Isthmus. The trouble of the west coast importers is in having it taken from Panama by the steamers. Some of them send special representatives to Panama to labor with the steamship agents. In the latter part of October a steamer of the Chilean Line sailed one day and one of the British company the following morning. Yet these two steamers left 5,200 tons of freight and some frantic shippers on the dock. The two companies are supposed to have a work-

[a] (1) Report to the Secretary of War by Joseph L. Bristow, Senate Document No. 429, Fifty-ninth Congress, first session. (2) Report on Trade Conditions in Central America and on the West Coast of South America, by Lincoln Hutchinson, special agent of the Department of Commerce and Labor.

ing agreement as to sailing schedules and other matters but apparently it is observed only in maintaining freight and passenger rates, the latter being comparatively the highest in any part of the world.

DELAY OF PASSENGERS.

The demoralization in the sailing schedules often puts passengers to a heavy expense. Nominally the companies dispatch their steamers from Panama alternate weeks, Thursday or Friday being the sailing day, so that passengers leaving New York, Southampton, Hamburg or Cherburg are supposed to be able to continue their voyage with a detention of not more than one to three days. But during October passengers from Europe and the United States had to wait intervals of eleven and again of twelve days in order to take their passage for Guayaquil and the other ports. I am informed that this delay was exceptional, yet it is admitted that no reliance can be placed on the published schedules. Increased trade on the west coast has increased the number of business men and others traveling, and they are entitled to some consideration both in preventing loss of time and in incurring expenses.

The question of freights, however, will be the controlling one and in view of the permanent addition to traffic by way of Panama the necessity of improved shipping facilities through the present lines enlarging their service or by the establishment of competing ones is most important to the commerce of Ecuador and to the entire west coast of South America.

NATIONAL FISCAL SYSTEM.

The fiscal system of Ecuador does not bear heavily on imported commodities, many of these being articles of prime necessity which could not stand too large an impost. Though the various surtaxes, warehouse and wharf charges, and miscellaneous dues must be taken into consideration in connection with the customs schedules the total does not amount to figures that are formidable. With a few exceptions the tariff rates are specific and are based on net and gross weight according to the metric system. Articles free of duty include a wide range of construction material, steel rails, iron and steel bridge work, agricultural and other machinery, instruments and apparatus, building material, etc. During the periods of domestic agricultural scarcity wheat and other cereals are admitted free while the duties are reduced on various food products, but that on flour is high. Textiles bear a large part of the duties that are collected.

The proportion of the import and export taxes is about $2 on imports to $1 on exports. In 1906 the customs income from import duties was 5,649,000 sucres and from export duties 2,620,000 sucres.

The internal-revenue receipts are from taxes on the consumption of liquors, land transfers, the stamp tax, the salt monopoly, and miscellaneous sources. The post-office system and the Government telegraph and telephone lines produce no net revenue, both being operated at a loss. The national revenues from all sources vary from 11,000,000 to 12,000,000 sucres, or $5,500,000 to $6,000,000. After the current expenses of the Government are met this leaves little if any surplus for guaranteeing railway construction and carrying on public improvements of a national character. President Alfaro's administration is strongly committed to railway construction, but it has to take into account that the Government of Ecuador is poor and its wishes in this matter can not always be converted into deeds. However, the recognized public debt, foreign and internal, is not so large as to preclude the probabilities that sufficient guaranties may be afforded foreign capital to induce it to undertake some of the projects which I have outlined in treating of railways.

THE PUBLIC DEBT.

The latest official information concerning the public debt of Ecuador is contained in the report of the minister of hacienda (secretary of the treasury) for 1906. The obligations comprising the foreign debt consisted of the bonds issued for the Guayaquil and Quito Railway; the consolidated debt or loans from the banks of Guayaquil to the Government; credits to be consolidated; and the loan from the French Finance Corporation. These debts are usually described in terms of condors, the condor being the coinage basis of the Ecuador gold money system, equal to 10 sucres, and the exact equivalent of the English pound sterling. In July, 1904, gold bonds for the railway had been issued up to $9,500,000 and later additions increased the amount to about $12,300,000, making allowance for the redemption or amortization. Some questions in dispute between the Government and the company relating to the full amounts due, the interest payments, etc., presumably will be settled by the arbitration that is now in progress. In 1906 an issue was made of $1,000,000 gold custom-house bonds redeemable at par in payment of 50 per cent of the general export duties and 100 per cent of the export duties on vegetable ivory. The proceeds of this loan were for the payment of the Guayaquil and Quito Railway bond coupons. It was taken by the local merchants and the banks.

The Guayaquil Bank loans to the Government vary according to the latter's necessities and the willingness of the banks to provide for them. In 1906 the sum was 4,207,000 sucres or $2,100,000. Provision is made for paying the interest and the amortization fund on these loans by making over the collection of the export and import duties

out of which the banks retain the amount that is to be applied to interest and redemption.

The internal consolidated debt amounted to $300,000 and the floating debt consisted of obligations to Government employees and similar items which scarcely can be figured as part of the national debt. The loans from the French Finance Corporation totaled $440,000 and were contracted in order to meet the railway coupons.

Guayaquil has a municipal debt of about $1,000,000. The city is rich and solvent and could add largely to this sum in carrying out the project of sanitation without in any manner impairing its credit.

MAINTENANCE OF GOLD STANDARD.

One source of strength to Ecuador which gives stability to its commerce with foreign nations, particularly during periods of political revolutions and other uncertainties that in some of the South American countries so seriously hamper trade, is its monetary system. It easily maintains the gold standard, there are no violent fluctuations in exchange, and the value of products bought in the country or of goods shipped to it never is in doubt. The legislation providing the gold standard went into effect in 1900. The real basis is the English pound sterling, which was declared by law to be current and legal tender. This provision accounts for the importations of English sovereigns and their employment as part of the gold reserve of the banks. In addition to the gold coins the circulation is of silver and paper notes. The unit of circulation is the sucre and 10 sucres equal a gold condor or English sovereign. The sucre is issued both as silver coin and as a bank note, but the more convenient form of the note is preferred and the silver circulation is more of the minor coins. Bank notes are issued in the denominations of 1, 2, and 5 sucres and upward.

The Ecuador law requires a gold reserve of 50 per cent and an additional 10 per cent of silver for banks of issue. There are three banks of issue whose notes are in circulation: Banco del Ecuador and Banco Comercial y Agricola, of Guayaquil; and the Bank of Pinchincha, of Quito. The latter is a new institution and was started chiefly with American and other foreign funds with a capital of $300,000.

BANKS OF ISSUE.

The total outstanding circulation of the banks of issue as of the year 1906–7 is 8,368,000 sucres, divided as follows: Banco del Ecuador, 4,098,000; Banco Comercial y Agricola, 3,950,000; and Bank of Pichincha, 320,000. This does not mean that the business of the country is conducted entirely on 8,368,000 sucres or $4,184,000, since there is the movement of species, principally sovereigns imported

from England. In 1906 the exact importations were £196,000 and of this amount £47,000 was transferred to Peru and Chile against drafts on London. At the beginning of 1906 the circulating medium in the hands of the public was $11,666,824, divided into bank notes, $6,367,000; gold notes, $2,504,869; and silver notes, $2,794,955.

Besides the three banks whose notes are in circulation two mortgage loan banks—the Banco de Credito Hipotecario with a capital of $500,000, and the Banco Territorial with $200,000 capital—are organized on a basis which gives them the right to issue notes. The mortgage banks issue warrants or "cedulas" for each operation they make, these warrants bearing 9 per cent interest and being guaranteed by the mortgage on the property and by the bank's capital. The Banco Comercial y Agricola also has a mortgage loan department.

The total deposits in all the Guayaquil banks, including the savings banks, at the beginning of 1906 was $4,115,762.

DISCOUNTS AND EXCHANGE.

The rate of discount for the quarter of century preceding 1905 was 12 per cent. Then it was lowered temporarily to 7 per cent, with subsequent increase to 8 per cent. Banking has been a very profitable means of investing capital, as appears from the summary of the operations of the leading financial institutions. The Bank of Ecuador paid a dividend of 15 per cent in 1906 and this has been its prevailing rate for a number of years, except when it paid 16 per cent. The Banco Comercial y Agricola paid 12 per cent; the Banco de Credito Hipotecario 15 per cent, and the Banco Territorial 10 per cent. The average dividend on approximately $5,000,000 was 13 per cent. All of these institutions paid good dividends through the previous years, although in 1902, owing to a commercial crisis, the Banco Comercial called in the whole of its unpaid capital, passed its dividend and in the following year paid only 6 per cent. In 1906 all the banks, in addition to the dividends paid, added to their reserves. That the financial community of Guayaquil is a strong one is apparent from its banking operations.

The facilities for international commerce are provided by means of drafts on London and New York, but the transactions are for the most part conducted through London. Ninety-day commercial drafts on London, Paris, or Hamburg with the bill of lading attached are discounted at from 1 to 2½ per cent. For New York the time is usually sixty days. These commercial drafts are drawn by the exporters against shipments of cocoa, ivory nuts, rubber, hides, straw hats, etc. Bank drafts on New York and London are at three days' sight and ½ to 1 per cent premium.

MERCHANTS AND TRADE METHODS.

The commerce of Ecuador, the banking, exporting and importing, is principally in the hands of strong native firms, though foreigners are partners in some of the houses, particularly those who are interested in shipping. Most of the exporters are also engaged in the importation of general merchandise. Italians and Germans are about evenly established in the jobbing trade and they are the only ones who are at interior trading points as well as at Guayaquil. The Italians, however, are more numerous in retail business. The English are well represented. The cocoa trade is the basis of the French firms and several Spanish houses are also represented.

A compact Chinese commercial circle whose members do their own importing has a profitable share in the retail trade of Guayaquil and is showing a tendency to spread out through the country in spite of native opposition. At Quito business men have protested against the Chinese opening stores and at some of the smaller cities their places have been attacked by mobs. Ecuador has a rigid Chinese exclusion act and the local merchants claim that the Chinese who are trying to open business in the interior have got into the country surreptitiously instead of being members of the Guayaquil colony who were established in business before the exclusion act was passed. Notwithstanding the opposition which their presence causes the Chinese mercantile colony is to be viewed as a permanent and an influential one. Turkish subjects, Syrians, are also making their entrance into the trade of the country in spite of opposition.

AMERICAN REPRESENTATION.

American interests are fairly well established. The Guayaquil and Quito Railway, which is its own purchasing agent, is naturally the largest single buyer of the manufactured products of the United States. New York leather interests, which are the principal buyers of hides, in order to facilitate their business have established a trading company which imports and sells general merchandise. Its headquarters are in Guayaquil, with branches in Quito and other towns in the interior, Americans are owners or partners in several Guayaquil mercantile houses and the members of many of the native firms are frequent visitors to the United States, so that it can not be said there is a lack of knowledge of American goods. On the contrary the commercial communication is close.

As to the means of increasing trade it may be said that while circulars and catalogues do some good, samples, exhibits of the actual articles, demonstration, and personal solicitation by commercial travelers who understand the requirements of Spanish-American

people and the business methods will do much more good. Guayaquil by through steamer schedule is ten or eleven days distant from New York and also from New Orleans. Quito by the railway is two days distant from Guayaquil, and the trip there affords the means of learning the commercial wants of the inhabitants of the inter-Andean plateaus and also of those in the Oriente region which stretches from the slopes of the Eastern Cordilleras through the fertile valleys that are watered by the tributaries of the Amazon. The best time for visiting the country is the healthy season, comparatively speaking, at Guayaquil, which is from June to December. The coolest and most pleasant months on the coast are June and July.

NATIONAL EXPOSITION—CHAMBERS OF COMMERCE.

Opportunity for the exhibit of actual goods and the working demonstration of their utility is offered by the national exposition which opens at Quito in August, 1909. This should prove an especially good chance for making known American farm tools, such as plows and the simpler implements. Information regarding the conditions and the details of the Ecuador National Exposition can be obtained later—when the plans are further advanced—through the Bureau of Manufactures.

Valuable means of information, especially in regard to the finances, export commerce, and the resources of Ecuador are the Chambers of Commerce of Guayaquil and Quito, respectively. The Guayaquil organization has been in existence for several years. Its annual reports, containing a full review of the trade movements, are published in English. The Quito Chamber has recently been organized and is the mouthpiece of the commerce of the capital. One of its objects is to secure the establishment of a customs-house at Quito. This is looked upon as a natural result of the construction of the railway. Other aims are to stimulate the agricultural development of the interior and to foster direct export and import trade. Its secretary may be addressed in English. (Lists of the members of the Guayaquil and the Quito Chambers of Commerce are filed with the Bureau of Manufactures.)

CONCLUSION.

In concluding this review of the commercial conditions in Ecuador with a statement of the stable financial system and the extent to which foreign interests are identified with the trade, I can only express the belief that if the abundant natural resources are developed, as they may be, the foreign trade will be increased proportionately. American enterprise, by building the railway, has opened up the heart of the country and added to the area whose products may be

marketed abroad. The accumulated capital of the Guayaquil business community can find profitable employment in developing and marketing these products and the commerce with all countries will be rendered more extensive and more profitable by placing Guayaquil on the modern sanitary basis of other leading ports.

The geographical proximity of the United States, its position as a buyer of Ecuador's products, and its function in supplying the manufactured and other articles that are demanded by the Ecuador market indicate that the present intimate commercial relations between the two countries will become closer. The Panama trade influence is already felt and this offers the opportunity for cooperation in so important a matter as international sanitation.

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COTTON TEXTILE TRADE

IN

TURKISH EMPIRE, GREECE, AND ITALY

By

W. A. GRAHAM CLARK

Special Agent of the Department of Commerce and Labor

MARCH 21, 1908

Referred to the Committee on Commerce and ordered to be printed

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LETTER OF TRANSMITTAL.

DEPARTMENT OF COMMERCE AND LABOR,
OFFICE OF THE SECRETARY,
Washington, March 19, 1908.

SIR: In compliance with the act making appropriations for the legislative, executive, and judicial expenses of the Government for the fiscal year ending June 30, 1908, approved February 26, 1907, I have the honor to transmit herewith the report of Special Agent W. A. Graham Clark on the Cotton Textile Trade in the Turkish Empire, Greece, and Italy.

Respectfully,

OSCAR S. STRAUS,
Secretary.

The PRESIDENT OF THE SENATE.

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LETTER OF SUBMITTAL.

MILAN, ITALY, *January 15, 1908.*

SIR: I have the honor to submit herewith reports on the import trade of and industrial conditions in the Mediterranean countries, Italy, Greece, Turkey, and Egypt, with special reference to textiles.

A study of cotton manufacturing in Italy discloses interesting conditions that have some comparative bearing on the American industry, while the facts brought out in connection with the reports on Greece, Turkey, and Egypt show an immense volume of trade, in which the manufacturers of the United States might secure an important share.

It is to be hoped that the information presented will lead to these markets being more thoroughly exploited for the sale of American cotton fabrics and of other products of American manufacture.

Respectfully,

W. A. GRAHAM CLARK,
Special Agent of the Department of Commerce and Labor.

To Hon. OSCAR S. STRAUS,
Secretary of Commerce and Labor.

COTTON TEXTILE TRADE IN TURKISH EMPIRE, GREECE, AND ITALY.

INTRODUCTION.

The following reports by Special Agent Clark covering the cotton industries and trade of Turkey, Greece, Italy, and Egypt are continuations of the volume issued from the Bureau of Manufactures in the early part of 1907, entitled, "Foreign Markets for the Sale of American Cotton Products." While the aim and scope of these additional reports relate to the cotton goods trade of the several countries treated of, Special Agent Clark covers their general trade, as being necessary to a full understanding of the conditions prevailing there, and the best means by which American manufacturers can reach the several markets.

The report covering the cotton goods trade of Turkey in Asia gives a comprehensive elucidation of the trade of a vast and complicated district, containing a large population with peculiar tastes in the matter of cotton textiles—tastes fully catered to by European agents and factors. Those portions of Mr. Clark's report covering cash and credits, business methods, conditions which hamper trade extension, freight rates, and banking facilities, and European imitations of American cloth, are of special interest to American manufacturers.

As a rule the trade of Turkey has been grouped under one head, which is not only confusing but very misleading, as the cotton goods trade of Turkey in Asia is at least double that of Turkey in Europe, not taking into account the cottons received in Turkey in Europe and thence passed on to Asia.

According to Turkish returns, as given by Special Agent Clark, the total imports of cotton goods into Turkey during the year ended March 31, 1906, amounted to $31,270,003, imported from the following countries: United Kingdom, $21,662,929; Italy, $3,146,891; Austria-Hungary, $2,654,725; Germany, $1,094,903; France, $1,025,768; all other countries, $1,693,697. All kinds of cotton manufactures are embraced in this schedule, although piece goods compose the greater portion.

As the United Kingdom may be said to dominate the cotton goods trade of Turkey, and as British piece goods come nearest to American

piece goods in quality and price of the manufactures of any other country, it is only necessary to give a few details concerning these to enable American factors to reach a very close estimate of their ability to compete in the markets of Turkey with other countries for any large portion of this trade.

The exports of British cotton piece goods to Turkey during the calendar year 1906 amounted to 478,880,500 yards and during 1907 to 401,335,200 yards, valued at $23,931,595 and $21,706,968, respectively, a loss of 77,543,300 yards and $2,224,627, which, according to Mr. Clark, was due to Italian and Austrian competition.

The United Kingdom exported to Turkey during the year 1906 cotton yarns to the value of $3,147,298, and 1907 $2,654,282, a decrease of $493,016. The exports of all other cotton goods (sewing thread, hosiery, etc.) from the United Kingdom to Turkey in 1906 amounted to $1,335,721, of which nearly one-half went to Turkey in Asia. Thus the total exports of cotton manufactures from the United Kingdom to Turkey in 1906 amounted to $28,414,614, instead of $21,662,929, as given in Turkish returns.

The exports of American cotton manufactures to Turkey for the fiscal year 1906 amounted to only $208,356, the greater portion going to Turkey in Asia.

For the fiscal year 1906 the direct shipments of American cotton textiles to Turkish ports amounted to $249,453. The largest item was of unbleached or gray goods, of which 1,390,529 yards, valued at $95,760, went to Turkey in Asia, and 591,884 yards, valued at $41,843, went to Turkey in Europe. The export of bleached goods from the United States to Turkey in 1907 aggregated 74,358 yards, worth $6,201, dyed goods, worth $29,262, and wearing apparel, etc., $4,387. The foregoing furnishes the basis and entering wedge for what should develop into a substantial trade.

The imports of cotton manufactures into Greece in 1906, as given by Mr. Clark, amounted to $2,022,896, besides cotton yarns, which were imported to the value of $261,356. The exports of British piece goods to Greece during the years 1906 and 1907 amounted to $1,967,258 and $2,067,123, respectively.

The total value of British cotton manufactures (piece goods, yarns, and all other manufactures) exported to Greece in 1906, the latest year for which full returns are available, amounted to $2,527,732, or $243,480 more than such imports into Greece from all countries during that year, according to Greek statistics. This, at least, shows the predominance of British cottons in the Greek trade. Mr. Clark calls attention to the fact that he saw special brands of American piece goods in Greek shops.

An item of special interest in Mr. Clark's report is that relating to four direct steamship lines now plying between Greece and the United States, whereby American products can be delivered in that Kingdom in shorter time and at lower rates than from Liverpool, a fact which should be taken advantage of by American producers generally.

In his report on Italy, Mr. Clark says: "The greatest article of manufacture in Italy is cotton, and the product of the cotton mills forms by far the largest item in the list of manufactures exported."

Very few have given consideration to Italy as a cotton manufacturer, but all who read the report on the development of this great industry in that Kingdom will perceive that Italy is beginning to dispute the world's markets with the older manufacturing countries.

As in nearly all manufacturing countries, Italy is still indebted to foreign countries for some special classes of foreign cotton goods, such as thread, twine, colored or dyed piece goods, made-up goods, cotton oilcloth, etc., of which it imported $5,357,921 worth in 1906, perhaps relatively the smallest import of any of the manufacturing countries of Europe.

The exports of cotton manufactures of all kinds from Italy in 1906 amounted to $23,097,156, composed of the following: Yarns, etc., $4,506,504; colored or dyed piece goods, $10,713,884; printed piece goods, $2,675,055; other piece goods, $2,298,484; total piece goods, $15,687,423; all other cottons, $3,103,229. As noted by Mr. Clark, this shows a steady increase in the exports of cotton manufactures for Italy, the amount in 1895 having been only $4,711,000.

The fact that Italy, after importing all the raw material, the greater portion from the United States, should be able to build up a large and growing trade in Argentina, Turkey, Egypt, etc., should convince American manufacturers, who have the raw materials at their mill doors, that there is no market so guarded or possessed by foreign factors wherein, by comprehensive and steady effort, trade can not be built up.

Mr. Clark's report, not only as it relates to the cotton goods trade but for its valuable information covering the organization and working of Italian mills, the relations existing between employers and employees, as well as the living conditions, wages, and efficiency of the latter, deserve the special consideration of American mill employers and employees, as, in the main, these "efficiencies" in the production of cotton goods are those which must be met and overcome in all American efforts to secure a fair share of the world's trade.

According to a report from Consul-General Iddings, of Cairo, the imports of cotton manufactures into Egypt amounted to $30,264,245 and $30,504,175 in 1906 and 1907, respectively. The exports of British piece goods to Egypt during the same years amounted to

$14,032,746 and $13,774,225, respectively. The total exports of British cottons of all kinds to Egypt in 1906, the latest year for which full details are available, amounted to $15,394,099, in a total import into Egypt in that year of $30,264,245, leaving a balance of nearly 50 per cent to be supplied by Austria, France, Germany, Italy, etc., the share of the United States therein amounting to only $10,053, our exports thither for that year.

Special Agent Clark calls attention to the fact that an excise tax of 8 per cent is imposed on the production of all cotton mills in Egypt. This will prevent any local manufactures of moment, so that American producers of textile fabrics, in any efforts they may make for securing trade in Egypt, can rely upon having to compete there with foreign factors only, the same competition which they have to meet in all other markets.

TURKISH EMPIRE

GENERAL TRADE REVIEW.

EUROPEAN MONOPOLY OF THE MARKET.

COMMERCIAL AWAKENING—AMERICAN INFLUENCE NOW BEING FELT—BUSINESS METHODS AND SUGGESTIONS.

Turkey is a country to which the United States sells few goods. American manufacturers are gradually beginning to realize, however, that this market is worth cultivating, and American sales are increasing. Though a backward country, Turkey is now feeling the impetus of modern progress, and trade in both exports and imports is growing. Concessions for railways, the electric trolley line at Damascus, two automobiles in Constantinople, and one telephone line authorized are signs of commercial and industrial advancement.

The latest Turkish statistics are for the year ended March 13, 1906, and show imports of $138,010,491 and exports of $86,558,429, or a total trade of $224,568,920. In passing through the Turkish customs many articles are said to be undervalued, and the actual trade of the country therefore is probably over $250,000,000.

Turkey's universal provider is Great Britain, which monopolizes between a quarter and a third of the total trade. Another third is controlled by Austria, France, and Italy, while the remainder is more widely distributed.

DISCREPANCIES IN STATISTICS—COUNTRIES SHOWING GAINS.

Turkish statistics, while they can not be regarded as accurate, are valuable as showing the general trend of the trade. The inaccuracy is greater in the case of the United States than in that of any other nation, and part of the trade, especially export trade, credited to Great Britain, Austria, France, Italy, and Germany is really American trade. This is mainly due to the fact that no American ships appear in Turkish waters, and the customs officers at many places have a habit of crediting exports to the flag that carries them. In regard to imports, there is not such a large discrepancy in this respect, but goods are often credited to the port of transshipment. There are also factors involved that even a careful customs service could not accurately ascertain. It is a fact that American goods are shipped into Turkey from the stock at the head agency in some other country. German goods are often shipped from Antwerp, Rotterdam, Trieste, etc., and in many cases credited to the country whence shipped. In fact, it would be better in this case to lump the figures for Germany, Austria, and Belgium. The figures for the United States, as stated, are the ones that are virtually wrong. Taking the official American figures and considering the amount that goes indirect, the trade of the United States with Turkey is not far from $15,000,000, of which $3,000,000 is exports to Turkey and $12,000,000 imports from Turkey.

While the Turkish statistics are not accurate, they seem nevertheless to show very well the trend of the trade with the continental countries.

DISTRIBUTION OF IMPORTS AND EXPORTS.

The latest figures showing the value of the trade of Turkey with various countries and the percentages showing their relative standing with corresponding percentages in 1901, follow:

Country.	Imports.			Exports.		
	1906.		1901, percentage.	1906.		1901, percentage.
	Value.	Percentage.		Value.	Percentage.	
United States	$1,265,271	0.92	0.26	$2,165,323	2.50	2.76
United Kingdom	48,363,926	35.05	34.88	27,852,357	32.18	28.07
Austria	28,671,029	20.77	17.48	9,404,135	10.88	7.77
France	11,742,884	8.77	11.60	21,167,549	24.45	29.79
Italy	10,763,279	7.76	5.74	4,382,185	5.06	3.34
Germany	5,831,293	4.23	4.11	5,401,875	6.24	5.18
Russia	8,008,700	5.80	8.76	2,612,916	3.01	3.12
Belgium	4,339,040	3.14	2.72	2,146,838	2.47	2.29
Bulgaria	2,055,192	1.48	3.50	3,326,307	3.84	1.65
Roumania	3,499,322	2.53	2.19	1,759,995	2.03	1.56
Holland	2,628,967	1.91	1.24	2,556,591	2.96	1.97
Greece	2,468,054	1.79	.92	2,391,772	2.76	1.96
Egypt	4,075,824	2.95	2.69			
Persia	3,228,502	2.32	3.17	288,132	.33	.10
All others	1,069,708	.58	.74	1,102,454	1.29	.64
Total	138,010,491	100.00	100.00	86,558,429	100.00	100.00

England's trade, while steadily increasing, has not in the last five years kept pace with the general trade increase of the country, and her proportionate share, owing to intense continental competition, has declined. The nations making the most substantial gains are Italy, Austria, and Germany, and to these might be added Belgium and the United States. The trade of both Russia and France has declined. All other countries are of minor importance, but in general their trade with Turkey has increased.

AMERICAN TRADE AND INFLUENCE.

It is probable that American trade in the last ten years has actually shown the largest proportionate increase, but much of this is indirect—silk to France, tobacco to Germany, etc. Germany, Italy, and Belgium impress one as being the countries most intensely striving for control of commercial affairs in this section. Their merchants use every means to enlarge their foothold, and their representatives are ever striving to gain new concessions, as every new concession means more work for the factories of their respective countries. So far American capitalists have held aloof from Turkey and have not taken any part in the contention for concessions. Our goods have made little impression on the trade in general.

In one respect American influence is beginning to be quietly perceptible in Turkey, and that is through the American schools that have been established. At Beirut, Smyrna, Constantinople, and at other points American schools with American teachers are exercising a powerful influence, and this influence in time will be quite a factor in securing at least a favorable consideration of American manufactured goods.

American export trade to Turkey, especially to Smyrna, has been stimulated by the better steamship facilities and is steadily if not rapidly increasing in volume. This is much more encouraging than the larger increase of exports to the United States, for the United States can always buy, but to sell takes longer preparation and requires more effort. If there were an even balance of trade, the steamship facilities would be greatly increased. While Great Britain sells to Turkey far more than it buys therefrom, the United States buys from Turkey far more than it sells in return. Next to Great Britain and France the largest proportion of Turkish products eventually find their market in the United States. We buy wool from Bagdad, Aleppo, and Damascus; licorice root from Alexandretta; tobacco from Saloniki and Samsoun; carpets from Constantinople; olive oil from Beirut; dates from Bussorah; and figs, raisins, opium, tobacco, and licorice root from Smyrna.

PRINCIPAL ARTICLES OF TRADE.

To get a comprehensive idea of a country's trade it is necessary to know the proportion of the principal articles bought and sold. The Turkish figures for such articles of foreign trade are as follows:

IMPORTS.

Cotton piece goods	$31,270,003	Sole leather	$1,504,565
Other textiles	17,367,241	Wheat	1,417,214
Cotton yarn and thread	8,032,827	Skins and hides	1,414,750
Sugar	11,355,863	Alcohol	1,221,947
Flour	4,991,746	Fezzes and hats	1,209,459
Rice	4,739,869	Sheep and goats	1,178,949
Petroleum	4,563,231	Millet seed	1,089,186
Coffee	4,164,910	Castor oil	1,064,510
Iron and ironware	3,732,922	Coal	1,051,170
Rugs and carpets	2,540,308	Morocco leather	996,278
Lumber	1,709,039	Paints and colors	905,300
Medicines and drugs	1,572,978		

EXPORTS.

Raisins	$10,361,257	Rugs and carpets	$2,402,620
Raw silk	7,976,320	Eggs	2,202,356
Cocoons	4,866,366	Olive oil	1,851,530
Mohair, wool, and fleece	6,223,956	Wheat	1,647,916
Figs	3,970,027	Fruit	1,603,008
Barley	3,301,085	Dates	1,523,578
Skins and hides	3,201,640	Sesamum seed	1,382,519
Opium	3,195,182	Nuts	1,291,483
Valonia	2,750,988	Coal	952,756
Ores	2,437,962	Oats	875,551
Beans and peas	2,547,698	Oranges, citrons, and lemons	854,734
Cotton	2,255,332		

Other imports in order of value are corn, bottles and glassware, matches, nails, wall paper, machinery, copper, cigarette paper, raw silk, sesamum-seed oil, tea, earthenware, tools and implements, and rubber overshoes. Other exports in order of value are licorice root, millet seed, coffee, corn, horses and mules, seeds (ordinary), fish, oxen, cows and buffaloes, and olives. The preponderance of the imports of cotton manufactures is very noticeable, and in fact in the case of almost every neutral or nonmanufacturing country cotton goods hold first place in the imports.

DISTRIBUTION OF COMMERCE.

The diagrams given herewith show that Constantinople is the great importing metropolis for Turkey, while Smyrna occupies a similar

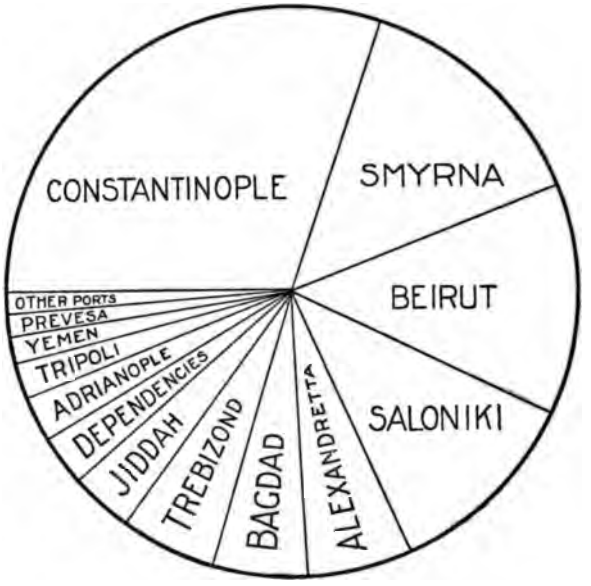


Diagram showing distribution of import trade.

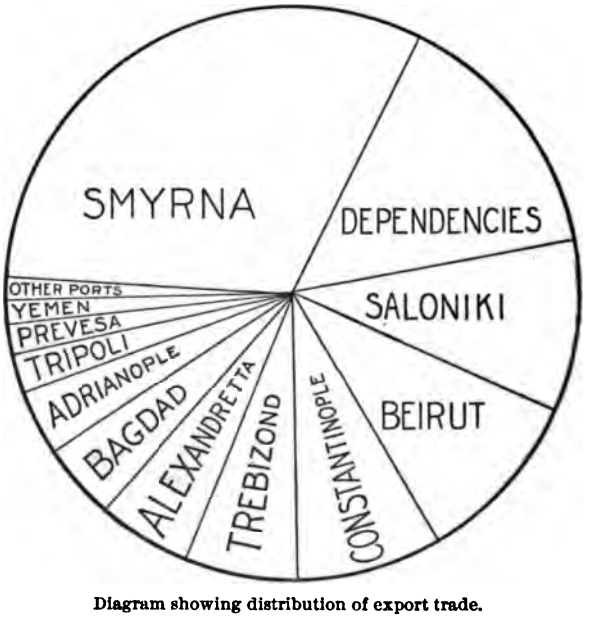


Diagram showing distribution of export trade.

position relative to exports. Other main importing towns are shown to be Smyrna, Beirut, Saloniki, Alexandretta, Bagdad, and Trebizond, *while* additional main export centers are the dependency ports, and

Saloniki, Beirut, Constantinople, Trebizond, Alexandretta, Bagdad, and Adrianople. Egypt and Bulgaria are both nominally dependencies of Turkey, but the "dependency" ports included refer only to those of Bulgaria.

Smyrna and Constantinople are the two ports having the best steamship connections, and the great bulk of American trade is with Smyrna, which is at present the second city in Turkey. When connected by rail with the interior of the country, Smyrna will, by virtue of its location, eclipse Constantinople in imports as well as exports.

BUSINESS METHODS.

At Constantinople the trade is largely handled by Armenians, at Smyrna by Greeks, and at Beirut by native Syrians. Nearly all of these understand French, while English is unknown except by a comparatively limited number. More of the Smyrna merchants seem to have a knowledge of English than is the case at any other point, but even to them French is more familiar. For Turkey, therefore, catalogues should be in French, and in most cases correspondence, cables, etc., should be in the same language. Prices for Turkey should be quoted in English pounds sterling and pence or in French francs. Though French is spoken and English little understood, the largest portion of the trade is with England, and English quotations are understood direct, while American money is only understood relatively, if at all. Owing to variation in value and name at various points quotations in Turkish money are not advisable.

Quotations from America are sometimes f. o. b. factory, say St. Louis or Cincinnati. Such quotations nine times out of ten are immediately thrown into the wastebasket. Quotations f. o. b. New York are also disliked. Quotations should be f. o. b. Smyrna or other port of destination. Many continental firms get a start here by quoting "franco domicile"—that is, landed at the importer's door—which quotations always receive attention. In such cases the manufacturer usually has an agent to look after the landing, customs, and hauling, but in some cases new exporters get started by quoting franco domicile and then making an allowance to cover these items. Quoting franco domicile or even f. o. b. Smyrna is more troublesome to the exporter than quoting f. o. b. American factory, but it saves trouble to the importer, who is the one to please.

CASH AND CREDIT.

"Cash against documents" is unpopular, and "cash before shipment" is usually laughed at. Three months might be considered the average Turkish credit, but of course this varies greatly. For instance, the bulk of the yarn trade is a cash business, also "Cabots," while the cotton-print trade demands at least three months and the cotton-flannel trade six months. Terms also vary at each import center. As a rule, the English give the shortest and the Germans and Italians the longest time. Whether due to this or other causes, the trade of the latter two countries is increasing at the expense of the former. Instead of "cash against documents" an equally safe and much more satisfactory business can be done by quoting "cash on arrival of goods." Drafts with bill of lading attached should be consigned to the Imperial Ottoman Bank or the Credit Lyonnais, to be collected on arrival of goods. Importers prefer to pay the interest

on draft rather than to pay before goods arrive. I have been informed of several instances where by refusing this simple accommodation American houses have lost the business. Three months' time is demanded in many lines, and where the standing of the importer warrants it should be freely given. Longer than this is rarely, if ever, advisable in Turkey, though some exporters on certain lines give very long time—up to nine months or over. Cash—that is, "cash on arrival of goods"—is usually the more advisable method, but where cash is demanded a discount, say of 3 per cent, should always be made for payment.

VALUE OF LOCAL AGENTS—AN AMERICAN BANK NEEDED.

Business can be built up much quicker through local agents than by long-range work. In choosing local agents, however, much care has to be exercised, for it is usually to the agent's interest in case of claims arising to side with the local merchant rather than with the foreign exporter, for the agent can find another foreign exporter much more easily than another home client. Furthermore, banks in Turkey, as shown in the case of bank losses in some recent Smyrna failures, do not usually know the real financial position of the merchants, and their reports therefore can not always be regarded as correct. There are, however, many reliable native firms which handle large commission accounts. Wherever possible American agents are the best, especially agents who have been established some time and are in touch with local conditions.

The direct shipping problem in connection with American trade seems to be gradually solving itself and rates are decreasing, but direct banking is still needed, and an American bank in Turkey would do much to facilitate and increase American business with that country.

IMPORTANCE OF COTTON TEXTILE TRADE.

OPPORTUNITIES FOR INCREASED SALES OF AMERICAN PRODUCTS.

Turkey is a nonmanufacturing country, and the bulk of the clothing for its people is supplied by more progressive nations. The importance of this trade is shown by the fact that, after India and China, it is the largest consumer of Great Britain's immense cloth production and is also one of her best yarn customers. The market is large and worth cultivating, and the American cotton manufacturer should strive more strenuously for his share of it. At present American trade papers, in commenting on the cotton cloth export trade, mention the takings of China, South America, and the Red Sea ports, but that is all. By a little work Turkey could be added to this list, and there is a much larger field here than there will ever be at Red Sea ports. The present time of prosperity and of great demand for cloth at home is the time that American cloth salesmen should be developing trade in Turkey, so that the mills may run full time should the home demand slacken. The actual work of building up a trade here can only be done by the manufacturers and commission men sending out salesmen, or else forming a connection with local houses and sending them samples and prices. With the recent improvements in the time of steamship connections and lowered transportation rates, the market is as accessible to the United States

as to Europe, and the effect of these on the trade at Smyrna is already marked.

The chief drawback to the extending of our textile trade with Turkey is that smaller orders have to be taken than is the case with China. Local requirements as to making up, marking, and packing have to be catered to, and in most cases the time for making payments has to be extended. Withal it is, after China and South America, the field most worthy the attention of American manufacturers as likely to yield good results. India, of course, is the biggest field, but the English are much more strongly intrenched there than they are in Turkey, and India is not so accessible from the United States.

VARIETY AND VALUE OF IMPORTS.

The following are the latest Turkish figures for the cotton goods imported into Turkey, being for the year ended March 13, 1906:

Description.	Value.	Description.	Value.
Prints and piqués	$10,107,080	Braids	$310,614
Cabots	7,046,493	Ginghams, imitations of native cloths	307,368
White shirtings	4,598,244	Calicoes and remnants	304,920
Muslins	2,036,094	Canvas	246,509
Underwear	1,274,988	Bathing waist cloths and towels	235,590
Covers, bed and table	833,349	Waist sashes	179,434
Linings	753,452	Ribbons	134,428
Dimities	732,800	Damasks	130,098
Laces	661,496	Sail cloth	96,170
Handkerchiefs	626,586	Imitations of native "dima"	16,000
Drills	373,200		
Cotton velvets	315,090	Total	31,270,003

Great Britain's predominance in this line is shown in the following figures, although Italy, Austria, and Germany are yearly increasing their sales and giving England keener competition:

Country.	Value.	Country.	Value.
Great Britain	$21,662,929	Belgium	$416,694
Italy	3,146,891	Holland	321,872
Austria	2,645,725	All others	955,131
Germany	1,094,993		
France	1,025,768	Total	31,270,003

Other textiles of various kinds imported into Turkey are shown by the following figures for the year ended March 13, 1906:

Description.	Value.	Description.	Value.
Woolen dress materials	$3,940,682	Hosiery	$829,625
Cashmeres	2,815,208	Bundle covers	657,633
Cotton and linen cloths	1,954,480	Flannels	488,026
Sacking	1,696,548	Bazin cloths	272,932
Silk goods	1,335,800	Shawls	171,930
Broadcloths	1,326,752		
Ready-made clothing	980,079	Total	17,367,241
Aba cloth and serges	897,556		

This gives a total value of textile goods of all kinds imported into Turkey of $48,637,244. In the last table part of the cashmeres is cotton cashmere and a good part of the flannels is cotton flannel. Cotton goods form a part of several of the other items, but not being kept separate in the import list there is no way of ascertaining the

proportion. Of the total, however, it would seem that the real amount of cotton goods imported into Turkey is over $35,000,000 a year, and a market of this size is worthy of study.

The bulk of the "prints and piqués" in the cotton-goods list is the ordinary shirting print, 31–32 inches wide. The well-known mill brand "Cabot" in Turkey includes all sheetings, because of this one brand having a wide reputation and the brand, as well as the cloth, being imitated by the Italians and Austrians. In the import list of the Turkish Government the term "Cabot" is used in a still wider sense, including not only gray sheetings but all similar gray goods, especially gray shirtings and T cloths.

SOURCES OF SUPPLY.

The main cotton piece goods imported into Turkey are prints, T cloths, gray shirtings, white shirtings, gray sheetings, muslins (including tanjibs), linings, dimities, and cotton flannels. Of the prints 70 per cent come from Manchester, 15 per cent from Italy, and the remainder from Austria, Germany, France, and Belgium. The T-cloth trade is a monopoly of Great Britain, and the great bulk of the gray shirtings also comes from Great Britain. The gray sheetings are mainly supplied by Italy, with a less amount from Austria and still smaller amounts from Holland and the United States. The muslins imported come mainly from Great Britain, as do practically all the tanjibs. Of the cotton linings of various kinds Great Britain furnishes about 40 per cent, Austria 25 per cent, Italy 15 per cent, and Germany 10 per cent. Two-thirds of the dimities come from Great Britain and 15 per cent from Italy. Cotton flannels and flannelets come mainly from Italy, with lesser quantities from Germany, England, and Austria. Drills come from Great Britain and Italy, and cotton velvets from Austria, Great Britain, and Germany.

Bed and table covers come from Austria, England, and Germany, as do also laces; underwear from Austria, Italy, and Germany; hosiery from Austria, with smaller quantities from Germany and England; handkerchiefs from England and Austria; and ready-made clothing mainly from Austria, with smaller amounts from Germany and England. Broadcloth is also mainly supplied by Austria. Woolen dress materials come from Austria and Italy, with some from Germany, while silk goods come from Italy and Austria, with some from England and Germany. Cashmeres come from Austria and England, and the cotton and linen cloths mainly from England. Bundle covers come from England and Austria, the varicolored waist sashes mainly from Austria, and bathing towels from England. Burlap is supplied by India and England.

The only goods supplied by the United States are sheetings, some drills (mainly dyed), and small amounts of dimity, duck, handkerchiefs, underwear, and hollands.

COTTON YARN AND THREADS.

In cotton yarn imported into Turkey Great Britain does not have as large a monopoly as in cloth; in fact, Italy and Austria are working hard to control the market. In the tables India is included with Great Britain, so that the actual figures for Great Britain

should be reduced by the amount of India's yarn contribution, which averages about $500,000 a year. The latest Turkish figures for the yarn imports, for the year ended March 13, 1906, are as follows:

Country.	Pounds.	Value.	Country.	Pounds.	Value.
Great Britain	19,205,528	$3,908,245	Belgium	147,337	$30,092
Italy	7,233,881	1,309,443	Russia	27,854	8,651
Austria	4,741,483	943,966	United States	17,641	3,340
Germany	334,177	75,527	All others	575,343	115,007
Holland	145,898	34,893			
France	161,126	32,642	Total	32,590,268	6,456,806

The cotton thread used in Turkey is mainly supplied by Great Britain, with smaller quantities from Italy and Austria. The United States does not seem to compete at all. The Turkish figures for cotton thread, reel and spool, imported into Turkey, are as follows:

Country.	Pounds.	Bunches.	Packets.	Value.
Great Britain	1,579,228	1,519,771	365,235	$830,220
Italy	1,093,971	409,357	61,669	278,411
Austria	359,721	424,762	232,524	205,124
Holland	5,016	617,879	1,850	93,380
Germany	149,046	117,461	22,138	68,763
Belgium	80,303	271,322	7,180	58,762
France	18,516	28,163	8,267	13,847
All others	106,127	27,721	2,110	27,516
Total	3,391,928	3,416,436	700,973	1,576,023

CONDITIONS WHICH HAMPER TRADE EXTENSION.

Trade in Turkey suffers from several restrictions. In sending telegrams, for instance, every sentence has to be studied by the censor at Constantinople, and no message is allowed in cipher. Even consuls can not use codes except when telegraphing direct to their governments or to their embassy at Constantinople. The cost is doubled by having to be sent first to Constantinople and then forwarded, and of course the normal cost is greatly increased by the prohibition of business codes.

Electricity is regarded with suspicion, and telephones are prohibited throughout the Ottoman Empire. In this particular they are far behind the Chinese, whose leading merchants in the large cities are as familiar with the telephone as the merchant in the United States, and use it almost as freely. At Constantinople I was informed that the Sultan had just authorized one telephone line, and if this is so it will doubtless be followed by others within a short time.

Several Turkish cities have gas works, but Damascus is the first city in the Empire to have electric lights. The electric lights and an electric street-car system were only started in Damascus in the early part of last year, but already Beirut and other towns have obtained authorizations for similar projects.

Owing to delays in mail transmission, and to letters sometimes being opened by the native authorities, the main European powers now have their own post-offices at all the principal ports, but, with the exception of Jerusalem, this system does not extend to the interior cities. There is a money-order department connected with

each foreign post-office, and in remitting small sums to Turkish ports this will be found the cheapest method.

In the present decade there have been many signs of improvement in conditions in Turkey, and, though everything in the East moves slowly, there is bound to be a much more rapid progress in the future. Even with the present methods the trade of the country is steadily increasing and in the export trade the United States has more than kept pace with the increase, but still has only a small portion of the import trade that should go to it.

IMPORTANT SUGGESTIONS.

A parcels-post treaty between Turkey and the United States is needed in order to send samples cheaply. This would save the high charges that are now made on small packages and would be of advantage in opening up many places to American business.

Above all things, American commercial travelers are needed in Turkey. The Italians, the Germans, the Austrians, the Belgians, and the English have many such representatives, and in many lines regular trips are made at stated intervals, so that they not only start but hold their trade. Until Americans apply this system to Turkey they can not hope to get the market from other competitors who have men on the spot.

American exporters could increase their sales in Turkey and do a more satisfactory business by adapting their goods to local requirements; sending over commercial travelers; using French in correspondence and catalogues; using metric system in quotations; quoting in French or English money; quoting c. i. f. Turkish port or "franco domicile;" giving thirty to ninety days' credit to firms of standing; in "cash" quotations always quoting "cash on arrival of goods," and invariably giving some discount for cash; accepting small initial orders; accurate adherence to specifications and care in packing; promptness in shipping, and by carefully studying beforehand what shipping route will be to the interest of customers in regard to time, cost, and liability to damage by transshipments.

In the case of Turkey, the duty is almost uniformly 11 per cent ad valorem; therefore quoting "franco domicile"—that is, "delivery free into customer's store"—should be comparatively easy and is a very popular method.

EUROPEAN TURKEY.

VALUABLE MARKET FOR PIECE GOODS.

AREA, POPULATION, AND COMMERCIAL IMPORTANCE—CONSUMPTION AND EXPORTS OF NATIVE PRODUCTS.

Turkey in Europe has gradually been reduced in size until now it is only 66,500 square miles in area. The population is about 6,000,000, of which only about 700,000 are Turks, the remainder being composed of Albanians (1,500,000), Greeks (1,300,000), Bulgarians, and Wallachians; about 40 per cent only are Mohammedans.

European Turkey includes the vilayets of Constantinople, Adrianople, Saloniki, Monastir, Kossovo, Skutari, and Janina. The main towns are the ports of Constantinople, with about 1,250,000 inhabitants, Saloniki, with about 100,000, and Adrianople with about 80,000.

While Turkey in Europe is smaller, in both area and population, than the peninsula of Asia Minor, it probably consumes more goods, as it is nearer European markets and better opened up with railways. The consumption of cotton piece goods is especially large, for while the Bedouins and fellaheens in the country districts of Syria and Asia Minor wear a large amount of native-woven goods, the peasants in European Turkey find it usually cheaper to buy the foreign cloth. There is a large native manufacture of shawls, rugs, and carpets, especially for export from Constantinople.

NATIVE COTTON GROWING.

Cotton is raised in European Turkey and in Asia Minor, but mostly in scattered lots. The section around Adana, Asia Minor, raises the largest quantity, and a railroad built from the port of Mersina to tap this section has stimulated its cultivation. There is also good cotton-raising land in the section back of Smyrna, and the cotton of that section is mostly ginned at Aidin, near Smyrna, before shipment. Syria does not raise cotton in commercial quantities. Practically all the Turkish cotton exported is shipped from either Mersina or Smyrna.

Back in the sixties, when the cultivation of cotton all over the world was stimulated by the scarcity and high price of the American article, there was considerable cotton raised in Asiatic Turkey, but with the drop in value that afterwards ensued the cultivators near the coast found more money in other crops, grapes, olives, figs, etc., so that little cotton was planted. With the present continued high price of cotton its cultivation is once more expanding. There is a good deal of land in Asia Minor that would be suitable for cotton, but a good part is without railroad facilities. The most of the cotton grown is of the local staple, as it has been found that the American staple deteriorates unless fresh seed is imported each year, and this is too expensive. The local cotton is clean, and of fairly good staple. It runs some $\frac{1}{16}$ to $\frac{5}{8}$ inch in length, but is not regular, and is harsher than the American. The cotton-growing season is the same as that in the United States.

COTTON IMPORTS AND MANUFACTURES.

Turkey imports a trifle of cotton—some 1,288,594 pounds, of a value of $89,000 in 1906—but has few factories, and exports more than it imports. According to the figures of the Turkish Government, its exports of cotton in 1906 amounted to 23,931,332 pounds, say 54,000 bales of 440 pounds each, of a value of $2,255,332. Austria and France are listed as taking the bulk of this cotton, while Italy, Greece, Germany, and Great Britain took smaller amounts.

The manufacture of cotton goods by hand work is a larger industry in Turkey than the manufacture by machinery, but there are some small cotton mills. There is a small yarn mill at Constantinople, and another at Saloniki, another near Smyrna, and a weave mill being built on the island of Mitylene. The industry tends to concentrate, however, in the main cotton-growing section around Adana, and there are several small mills now located there. There is also a mill near Tarsus, which is not far from the port of Mersina, and the machinery of the Egyptian mill that failed at Cairo is to be transferred and erected at this place. There are no cotton mills in Syria, but Damascus, Homs, and Hamah are all hand-loom centers.

MONEY, WEIGHTS, AND MEASURES.

The Turkish money unit is the piaster, which is worth 4.4 cents; 40 para equal 1 piaster, and 100 piasters equal 1 Turkish pound, which is therefore worth $4.40 gold.

The metric system was decreed obligatory in Turkey in January, 1892, but it has never been enforced. The cloth measure is the pic of about 27 inches. The pic in some places is called a dra, and in others endazé. In measuring land a lineal measure of 30 inches is used, called an arshin, and a superficial measure of 40 square paces, called a donum. The usual measure of weight is the oke, of 2.83 pounds, and the cantar or kintal of 125 pounds avoirdupois. The almud equals 1.151 imperial gallons, and the kileh equals 0.912 imperial bushel. These weights and measures, however, are varied at various places, so there is no really uniform system, as special weights and measures are used for several products. Among the importers the metric system is largely used, and for most articles quotations should be in figures of that system.

CONSTANTINOPLE.

AN IMPORTANT COTTON GOODS MART CONTROLLED BY EUROPEANS.

Constantinople from the beginning of modern civilization has been considered one of the most important strategic points of Europe. It connects or rather divides the East from the West. If a through railway line is built from London to Calcutta, Constantinople will be on the main line. The railroad that will probably be built in the next few years through Asia Minor and the interior to Bagdad will probably give Smyrna an important lead over Constantinople, for, though both places will be starting points, goods from Europe can be landed at Smyrna for shipment cheaper and quicker than they could be brought to Constantinople.

Constantinople has very good steamship facilities, though there is no direct line between the port and New York, as there is between Smyrna and New York, and all goods have to be transshipped at

least once at English, German, French, Italian, or Austrian ports before reaching Constantinople. The best route at present is by the North German Lloyd, which transfers at Naples to the Deutsche Mittelmeer Levant Line and delivers goods from New York in twenty-two days. This line has sailings from New York every Saturday, and time enough is allowed at Naples for transshipment, so that cargo does not have to lie over for another steamer, as is often the case with the connections of some other lines. England has four lines to Constantinople, Germany three, France three, Austria one, and Italy one. When time is a consideration, German as well as Austrian goods sometimes come by rail.

FREIGHT RATES AND BANKING FACILITIES.

The through rate on cotton piece goods from New York varies from 20 to 24 shillings ($4.866 to $5.84) per ton, weight or measurement. From Liverpool it is 20 shillings per ton measurement, and 30 shillings ($7.30) per ton weight, so that New York has as good freight rate as Liverpool; but Liverpool goods can be counted upon to arrive on time.

The banking facilities at Constantinople are good, as regards European business, though interest rates are very high, but as regards American business an American branch bank is badly needed. Banks in New York, under the present connections, or lack of connections, are not eager for paper on Turkish banks, and sometimes will only handle such paper in large quantities if the export house gives them other paper for which there is a demand, such as that on South Africa, etc. This system is hard on the small exporter and would be obviated if there were a branch here of some American bank. The English have long recognized the great value of bankers and merchants working hand in hand, and their banks are dotted over the face of the earth. The Germans are now doing likewise; they have established a bank at Constantinople, and, it is reported, will establish a chain of German banks throughout the Levant. The Austrians also have a bank there, and the Italians are now following suit, having just established the bank of the Societé Commerciale d'Orient.

The great advantage of a country having its own banks in foreign countries is not simply the facility of getting paper handled, though that is very important, but bankers are brought in touch with all the commercial factors of the place, and are able to advise their countrymen intelligently on the degree of credit that can be safely extended, and also to give information as to the needs and requirements of the people. The largest banks in Constantinople are the Imperial Ottoman Bank, and the Credit Lyonnais, of Lyon. The capital of each is given as $48,665,000, and these are the two banks that handle American business. Other banks are the Deutsche Orient Bank, the Wiener Bank-Verein, the Societé Commerciale d'Orient, and the Banque d'Athenes. Also there are local banks, the Banque de Metelin, and the Banque de Salonique.

LARGE COTTON GOODS TRADE—BRITISH MONOPOLY.

The trade of Constantinople in cotton piece goods and in cotton yarn is very large and is supplied by England, and handled largely by Armenian merchants. The bazaars at Constantinople are the largest in the Levant, and consist of streets roofed over, with stalls on either

side. There are several of these bazaars, but the cloth sales are mainly in what is usually called the Big Bazaar.

The main goods imported into Constantinople are prints, gray shirtings, bleached goods, muslins, T cloths, cashmeres, flannelets, velvets, linings, and handkerchiefs. There is also a large import of cotton and linen cloths for various purposes, bed and table covers, ready-made clothing, and underclothing. Cotton manufactures far exceed any other item imported at Constantinople, averaging fully 40 per cent of the total imports. These goods are used not only by the 1,250,000 inhabitants of this place, but some are exported to Asia Minor and the interior, and a larger portion shipped out to the surrounding section as far as the interior of Macedonia and the Balkan States.

England has so much the bulk of the cotton piece goods trade at Constantinople that, in the absence of accurate statistics, any increase or diminution of the trade, unless very important, is hard to determine. From what is said by importers and retail merchants, in regard to cheaper articles from European competitors gradually taking the place of the British-made cloths in certain lines, it would seem that the British cotton manufacturers are hardly holding their own. This is not true of their standard cloths, such as the fine white shirtings, T cloths, and other goods, on which they have a monopoly, but is on the trade in general and especially in regard to printed goods.

ITALY AND AUSTRIA STRONG COMPETITORS.

England's chief competitor is Italy, which is especially strong on cheap prints, cotton flannels, flannelets, and barchent. In fact, on printed napped goods Italy controls the Turkish market. Italy also leads in some other lines, especially in the two diverse lines of sheetings and mercerized satins. The competition of the Italians here is much aided by the nearness of the market, giving them quick delivery, by cheap freights, and by their willingness to cater to the demands of the market, accept small initial orders, and give long time or a good discount for cash.

Nearness also makes Austria a strong competitor in European Turkey, and that country ships large quantities of prints, sheetings, linings, cotton velvets, braid, bed and table covers, lace, handkerchiefs, and underwear, the bulk of the hosiery and ready-made clothing, and other articles, such as broadcloth and woolen material. Austria also sells large quantities of the cloth called "Vichy." The Austrians are doing an increasing business, but not to the extent of the Italians, one reason being that the mills of northern Austria have to pay a much higher charge for transport by land and sea, and owing to an increase in freight rates in the latter part of 1906 the northern Austrian mills have had to loosen their hold on this market and seek an outlet nearer home.

Germany, France, and Belgium compete in smaller degree, Germany shipping mostly prints, underwear, bed covers, lace, cotton velvets and cashmeres, woolen material, hosiery, and ready-made clothing, while France ships prints of various kinds, especially the higher grades, underwear, linings, lace, ribbons, and handkerchiefs.

There are few textiles of either cotton or wool from the United States; in fact, none were to be found in the bazaars.

SALONIKI.

AN IMPORTANT COMMERCIAL PORT—LOCAL AND INTERIOR TRADE.

Saloniki is the import center for the western part of European Turkey, especially Macedonia and Albania, and also ships goods up to the borders of Servia and Roumania. Railroads built within the last few years to Monastir and to the extreme northern border have done much to open the country to European trade. In some cases this has led to goods being ordered direct for interior points, but the bulk of the trade is handled through the importing merchants at Saloniki. European manufacturers have found it better to give the large importers an exclusive agency rather than to try to keep up with numerous smaller importers in the interior. As at Constantinople, there are many different races and nationalities at Saloniki, and their requirements and occupations are diverse. The import trade at this place is largely handled by Spanish Jews, who are a part of the descendants of the Jews that were driven out of Spain by Ferdinand and Isabella, and it is said that among themselves they write Spanish in Jewish characters. There are also numerous Greeks in business here, but for the most part their firms are small. There are also several agencies of European firms. The population of the vilayet of Saloniki is about 1,150,000 people, of which Saloniki itself has some 100,000.

The commerce here depends largely on the political situation, on the results of the crops, and on the prices obtainable for the country manufactures, such as carpets, table covers, etc. In regard to the total imports here, Austria leads, followed by England, Germany, and Italy. Italy sells mostly sheetings, called Cabots, from their imitation of this American brand, and printed flannelets. They also sell large quantities of pearl and glass buttons, such as are used on the country clothes. On account of the higher home freight rates some Austrian firms have dropped out, but they still have the lead, supplying mostly cheap prints, sheetings, and knit goods. The main consideration at Saloniki is cheapness, quality being a secondary consideration.

NATIVE HAND MANUFACTURE—CREDITS.

In European Turkey, as a rule, the native finds it cheaper to buy foreign goods than to manufacture for himself. Owing, however, to the high prices that have prevailed for the past year, the native hand manufacture, both here and in other parts of European Turkey, has been stimulated to an enlarged production which finds ready sale with the country people. There are some 4,000 to 5,000 bales of cotton raised annually in this vilayet, of which part is locally manufactured and part exported, mostly to Austria.

On imported cotton goods the rule here is six months credit, or 6 per cent discount for cash, but this varies. This credit is readily given by the Italians and Austrians, but the other countries only do so when they find they can not get the business otherwise. As long time is not given on cotton yarn as on cloth; in fact, it is more a cash business, but usually a discount is given for cash. The yarn comes from Italy and England, with some from Austria, mostly 6s to 12s in the gray, 6s, 8s, and 10s colored, and a smaller amount of higher numbers up to 30s. Austria furnishes a certain amount of mercerized yarn, mostly 14s.

ASIA MINOR.

OPPORTUNITIES FOR DEVELOPMENT.

AREA, POPULATION, AND RAILROADS—A MARKET WORTHY OF CLOSE STUDY BY AMERICAN EXPORTERS.

Asia Minor, the great peninsula of Asia that extends between the Mediterranean and Black Seas, consists of the following vilayets: Brusa, Smyrna, Kastamuni, Angora, Konieh, Adana, Sivas, Trebizond, the islands of the Archipelago, and the districts of Ismid and Bigha. The main ports are Smyrna and Trebizond.

The peninsula, containing some 193,000 square miles, and probably 9,000,000 inhabitants, out of a probable 25,000,000 in the whole of the Ottoman Empire, is the most important section of the Empire to be studied, but, owing to the lack of transportation facilities to the interior, its takings are not yet anything like what they should be, and, for the same reason, a large part of the country is undeveloped. It is partly supplied by Smyrna, partly by Constantinople, and partly from other sources.

Railroad facilities are very poor. There is a line from Smyrna to Constantinople, but much quicker time is made going around by sea. From Constantinople, or rather Skutari, the much discussed Bagdad railway runs some 500 miles, but further progress seems very slow. There is a line from Smyrna to Kassaba, and another from Mersina to Adana which taps the cotton-growing section. All these roads are being gradually extended, but the work proceeds slowly.

SMYRNA.

GROWING TRADE IMPORTANCE—SHIPPING AND BANKING FACILITIES.

Smyrna, next to Constantinople, is the largest city in Turkey, being the largest export port and the second largest import port. Its trade is growing faster than that of any other city in Turkey, and when modern railway systems have brought it into more direct communication with the interior and with the Persian Gulf, it should not only distance Constantinople, but become the shipping center for the western Mediterranean that Marseille is for the eastern. Situated, with a land-locked harbor, at the end of the Asian Peninsula, its strategic importance, in regard to commerce, can be seen from a glance at the map and needs no elaboration. Smyrna has better steamship facilities than any point in Turkey, and especially has direct lines to New York, so that the trade of the United States with Turkey is growing faster at Smyrna than at any other port.

The banking facilities of Smyrna are as good as any city in Turkey, but the cost of handling paper is unduly high, and an American bank would greatly help American business. There are at present six *banks* in Smyrna, as follows: Imperial Ottoman Bank and Bank

of Mitylene (both Turkish), Credit Lyonnais (French), Bank of Salonica (Austrian), Bank of Athens and the Orient Bank (both Greek). American business mostly passes through the Imperial Ottoman Bank and the Credit Lyonnais.

CHARACTER AND VALUE OF EXPORTS.

Accurate statistics of the trade of Smyrna are hard to obtain. The following list of the main exports was furnished by the manager of the Imperial Ottoman Bank as a list they had made up after checking the customs returns, with the aid of the large dealers, and is probably the most accurate figures to be obtained:

Articles.	1905.			1906.		
	Pounds.	Average price per pound.	Value.	Pounds.	Average price per pound.	Value.
Raisins:		Cents.			Cents.	
Sultana	154,330,000	1.72	$2,662,000	70,150,000	5.50	$3,850,000
Red	25,254,000	.27	673,200	14,030,000	.78	1,100,000
Black	43,493,000	.69	300,080	22,448,000	1.57	352,000
Barley	8,816,000	25.40	2,238,720	11,020,000	25.40	2,798,400
Opium	1,062,000	164.00	1,742,000	1,416,000	187.00	2,640,000
Valonia	154,330,000	1.70	2,613,600	171,166,000	1.38	2,361,920
Olive oil	26,657,000	5.80	1,546,600	35,075,000	6.37	2,233,000
Wheat	127,350,000	1.59	2,019,600	127,350,000	1.45	1,841,400
Cotton	23,851,000	7.53	1,795,200	20,203,200	8.78	1,774,080
Carpets			1,320,000			1,540,000
Figs	53,314,000	1.57	836,000	61,732,000	2.69	1,393,920
Tobacco				3,622,400	23.32	844,800
Beans	45,280,000	1.41	640,640	62,260,000	1.34	832,480
Wool	4,913,500	8.77	431,200	6,173,200	10.66	658,240
Sesame	11,886,000	3.03	360,360	9,905,000	3.53	349,800
Licorice	38,233,300	1.18	451,440	15,848,000	1.37	216,920
Goat and sheep skins				400,000		211,200
Cattle hides				50,000		165,000
White maize	18,112,000	1.01	183,040	18,112,000	1.09	197,120
Cotton seed	18,395,000	.78	143,000	18,395,000	.81	148,720
Nutgall	566,000	10.10	57,200	1,132,000	11.90	123,200
Yellow corn	367,900	31.09	114,400	339,600	31.09	105,600
Chick peas	19,923,200	1.96	390,280	5,094,000	1.81	92,400
Poppyseed				2,462,100	3.00	73,920
Gum tragacanth	198,100	21.77	43,120	226,400	24.50	55,440
Maize	2,320,600	1.07	25,080	3,396,000	1.01	34,320
Total			20,587,100			25,993,680

An accurate list of the imports into Smyrna does not exist, but cotton piece goods predominate. The Imperial Ottoman Bank, from its inquiries among the importers, states the import of cotton goods into Smyrna during 1906 to have been 24,038 bales, of a total weight of 16,734,972 pounds. Similarly they give the total yarn imports at 16,928 bales, weighing 6,120,508 pounds. The main cloths imported seem to be gray shirting, prints, flannelets, T cloth, white shirting, denims, colored drills, and gray sheeting.

EUROPEAN IMITATIONS OF AMERICAN COTTON GOODS.

About every trick that can possibly be known to the textile trade is in use at Smyrna. American labels and trade-marks are imitated, 36-inch sheetings are found to be 34; lengths are marked 40 that are actually only 36 yards; yard folds are 2 to 4 inches short of the yard; inferior sheetings, made of part American and part Indian cotton, are openly sold as American cloth; and, in many other ways, the consumer is persuaded to buy goods at a slightly lower price, say a 5 per cent reduction, when in length, width, weight, construction, or quality its value has actually been reduced 10 to 25 per cent.

The worst offenders in this respect will put on any mark required. For instance, the Cabot sheetings as they come from the United States are 36 inches wide and 40 yards long. The imitators put "40" at the bottom of the bolt, and on being counted there are found to be 40 folds, as usual, while actual measurement shows that there are only 36 yards, put up into 40 folds. The Cabot brand has been imitated and the distinctive blue labels with white lettering that have latterly been used to distinguish the American cloth have also been imitated, with a few slight alterations. There is a brand on the market like the Cabot, marked Cadot.

The object of all this imitation is undoubtedly to make the consumer think he is getting the standard American goods. The large importers at Smyrna defend these practices by saying that they are well known to the trade; for instance, the fact that Manchester prints are put up in "yard" folds does not mean usually that the folds are a yard in length, but they may be 1 to 3 inches shorter. The importers at Smyrna doubtless know all these details, but the consumer in the country does not, and he is the one that suffers. It is such methods, added to the cheaper construction of goods and the fact that no American agent is on the spot to point out to the consumer the frauds, that account for the decreasing sale of American sheetings and drills on this market.

COTTON GOODS IMPORTS AND FREIGHT RATES.

The cotton goods imported into Smyrna annually amount to over $5,000,000, and of this the United States, with the present direct steamship connections, should have a good share. There will have to be an American agent on the spot, however, to combat the sharp practices of competitors and to show the actual consumer where his interest lies. About the only goods supplied from the United States at present are gray sheetings, ducks, and gray, blue, and black drills, and these are not being pushed actively, hence the sales are declining.

The freight rate from New York to Smyrna varies, but is now about 20 shillings ($4.865) per 40 cubic feet, and 5 per cent primage; it amounts to about 3 per cent on goods valued at 5 to 10 cents a yard. The freight from Liverpool to Smyrna is about 17 shillings ($4.14), so there is not over one-half per cent difference. Sometimes, on account of competition, the freight is actually cheaper from the United States. There are now direct lines to New York, and the time is only nineteen days, as compared with an average quick shipment from Liverpool of at least twenty-two days; mail, however, gets to Smyrna from Liverpool in eight days. Wherever possible it should be the policy of American exporters to patronize the new Greek Moraities Line. The reason for this is that this line makes a direct trip from New York to Smyrna, with only a stop at Piraeus, and there is therefore a certainty that goods will go through without transfer and, in the absence of an American line, the building up of this direct Greek line is to the interest of American trade.

CHARACTER OF PIECE GOODS CONSUMED.

A feature worth noting at Smyrna is the increasing sale of the cloth called "barchent." In summer the people use large quantities of the regular shirting prints, and in winter large quantities of the printed *flannelets*. Barchent is now taking the place of the regular printed

flannelets. It has a hard and, usually, dull finish on one side, and is usually napped on the unprinted side. It is in various widths and lengths, mostly about 70 centimeters (27.6 inches) wide and 40 to 50 meters (43.6 to 54.5 yards) in length. The split goods are sold in 55 to 60 centimeter (21.6 to 23.6 inches) widths. These are woven in double widths and split down the center. The 70-centimeter widths are selling for 38 to 58 centimes a meter (7.3 to 11.2 cents per 1.09 yards) c. i. f. Smyrna.

Cotton flannel, flannelets, and barchents, especially the printed napped goods, are controlled by the Italians. The Austrians supply a good quantity of Vichy. The trade in Cabots is now divided between Italy and Austria, with only a few from the United States. Some of the sheetings sold here by Italians and Austrians and labeled "Cabots," "American cloth," etc., are good sheetings, but the majority is inferior filled goods made of part American and part Indian cotton. They are thus enabled to undersell the genuine article. The widths of the Italian are also usually narrower than the American.

There is not a very large import of drills, and the greater proportion of these are colored. The gray drills are mainly Italian and English, 28–29 inches, 40 yards. Blue drills come largely from Holland. Cheap aniline dye is often used.

In prints there are some from many countries, but the great bulk is from Manchester. The German good shirting prints are higher in price than the English. There are no split prints on the market, as the demand is for a good quality. The average print is about 20 by 20 construction, and 31–32 inches in width.

The white shirting and T-cloth trade is a monopoly of the English, both in various widths and qualities, but the main white shirting is 34 inches, 40 yards, with a cambric finish, and the T cloth is in 24-yard lengths, and most laregly sold in the 32-inch widths.

Blankets, wool and cotton, are ordered in the summer for fall delivery, the orders usually being placed in May, June, and July. Women's muslin veils were formerly bought already printed from Switzerland, but the muslin is now imported from England and hand printed at Smyrna.

CREDITS—YARN IMPORTS AND PRICES.

Cabots at Smyrna are usually a cash business. Prints are usually on six months time, or 5 per cent discount. On flannels the Germans give five months credit, or 5 per cent discount. The Italians on this only give the 5 per cent off for cash in ten days. [A list of the large importers of cotton piece goods at Smyrna is on file in the Bureau of Manufactures.]

The majority of the yarn imported is in the gray; the trade divides the imports into yarn, twist, and extra hard twist. By yarn is meant the soft twist yarn, suitable for filling, and in this Bombay, Austria, and Manchester compete. Italy has dropped out on this line. Bombay supplies over two-thirds of this, mostly low numbers, while Manchester supplies all the specialties. The Bombay numbers are mostly 8s and 12s, while Manchester runs up to 36s. Of the twist imported, usually called water gray, the numbers run from 6s to 32s. The low counts are supplied from Italy and the high from England. Nos. 8 to 12 are now quoted at 9.30 francs ($1.79) per 10-pound bundle c. i. f. Smyrna, and 12½ centimes (2.2 cents) added for each number higher.

Each 10-pound bundle contains the same number of hanks as the number of the yarn, except for the coarser counts, where the skeins are divided into half skeins. The extra hard twist, also referred to as water gray, comes mostly from England, with a little from Italy. Nos. 12 to 14 are now quoted at 10½ francs ($2.02) per 10-pound bundle and 12½ centimes (2.2 cents) added for each number higher. These prices are unusually high, and are tending to check the import. Most of the yarn arrives in 400-pound bales, consisting of forty 10-pound paper-covered bundles.

EUROPEAN TERMS OF SALE—ENGLISH MONOPOLY BEING BROKEN.

In selling yarn, England as a rule demands cash in Manchester, India takes cash on delivery, while Italy gives four months, or 3½ per cent discount for cash. The Italians usually forward bills of lading to their local agents, who surrender them to the buyer against three or four months drafts on London, and these drafts, being immediately sent to the manufacturers, are discounted by them at bank, and their money set free again.

In the spring of 1907 there were unusually large quantities of Indian yarn imported, but this has at present eased off somewhat. This sudden flow was due to the accumulation of Indian yarn at Shanghai and Hongkong, and the flood of Indian yarn being suddenly checked in that direction, the back rush sent Indian yarn into every section of Europe, including Turkey, Greece, Italy, Germany, Belgium, and even England itself. The Indian prices were such that they got the market, but the yarn did not come up to sample, and the amount now being pushed in is much less.

The German, Austrian, and Italian firms doing business in Turkey employ a good many commercial travelers, and these men are usually well educated in languages, cater to local requirements, and give credit. The English have fewer travelers, and so are not holding their own, even though they have the best established business. British exports to Turkey are mainly cotton goods from Manchester, but in Manchester itself German capital and German management is steadily increasing, and in Asia Minor the Germans, Italians, and Austrians are gradually breaking up England's monopoly on one line after another.

SYRIA.

IMPORTANCE AS A MARKET.

AREA, POPULATION, CITIES, AND DEVELOPMENT—CLASSES OF GOODS CONSUMED BY THE PEOPLE.

Syria is one of the main divisions of Asiatic Turkey, and extends along the eastern shore of the Mediterranean from the highlands of the Taurus in the north to Egypt on the south. It contains about 115,000 square miles and probably 3,000,000 people.

Beirut is the gateway for Syria. Alexandretta is also an important port. Other ports like Yafa, Haifa, and Tripoli are of less importance. The main interior towns are Damascus, Jerusalem, and Aleppo. Damascus is the largest city in Syria, and the most important distributing center. Jerusalem is important commercially only by reason of the crowds of tourists and pilgrims that swarm there. Aleppo is the starting point for most of the interior trade, especially of caravans to Bagdad and Persia.

The central coast portion of Syria embraces ancient Phœnicia, and the Syrian merchants of to-day have inherited much of the old Phœnician commercial shrewdness. Modern improvements are making more headway in Syria than in any other portion of the Ottoman Empire, not excepting European Turkey. Damascus was the first city to have electric lights and street cars, and Beirut now has a similar concession. The best educational facilities in Turkey are to be found in the American school at Beirut, and the people of Syria are more wide-awake to the advantages of modern inventions.

Though three-fourths of Syria is Mohammedan, there are few Turks in this section. The inhabitants are usually classed as Syrians, Arabs, Turks, Jews, and Europeans. The Syrians are the descendants of the ancient peoples who spoke Aramaic, a dialect akin to Hebrew, but their language now is mainly Arabic. Part of the Arabs proper are settled on the land, but the Bedouins are nomadic. The Turks consist of peasants who have settled in various parts of the country, a few effendi or Turkish gentlemen, and the official classes. The Jews are comparatively few in number, and are settled in Palestine. Further immigration of Jews is now forbidden by law. The Europeans are few in number, and nearly all reside at the ports. There is also a class called Levantines, who are descendants of Italian, Greek, and other ancestors, but who have entirely adopted the manners of the country. They are important commercially.

RAILWAY DEVELOPMENT.

Railroads are being extended more rapidly in Syria than elsewhere. The most important is the Government railroad from Damascus to Mecca. This road is regarded as a military necessity, but it has been exploited as a religious road to the holy city of Mecca, and the faithful

all over the Mohammedan world have contributed to its building. All Turkish officials were assessed one month's pay as an involuntary contribution, and many local taxes have been levied for the purpose. The railroad now extends from Haifa, the real starting point, to Derat, where a branch reaches it from Damascus, and has thence been extended southward to Rabbath Ammon, and past the east side of the Dead Sea. It is being built by German engineers and is expected to be finished to Mecca by 1910.

Another railroad, at present more important commercially, is the French line from Beirut to Damascus, which does a considerable business. From Reyak Junction on this line another line extends northward to Aleppo. Naturally Aleppo should be supplied from the near-by port of Alexandretta, but they are separated by a chain of steep mountains, and all talk of a connecting railroad line has as yet come to naught. Another railroad in Syria is the short line from Yafa to Jerusalem. The separate line from Reyak Junction to Aleppo is the standard 4 foot 8½ inch gage, but the other lines are meter gage (3 feet 4 inches).

When the country has been thoroughly opened up by railroads, and foreign capital given more protection, there should be quite an extension of manufacturing in Syria, for there is a good deal of water power available; the Jordan, for instance, falls 4,000 feet in 120 miles.

TEXTILE TRADE—KINDS OF GOODS WORN.

The Syrian textile market differs from that of Asia Minor and of European Turkey in that the trade is in the hands of the native merchants, and that few foreigners or Levantines are to be found in business. It also differs somewhat in the styles of clothes used; for instance, muslins, especially tanjibs, are imported more largely at Beirut than at Smyrna or Constantinople, being used as head coverings by Druses and other sects that are mostly found in Syria. Also there is a large population of Bedouins, so that colored head cloths and towels, which are worn by them under their camel's-hair circlet, are largely in demand.

There are no statistics available as to exact value or kinds of cloth imported into Syria, but the total of the cotton goods imported by Beirut, Alexandretta, and the smaller Syrian ports must be about $8,000,000 a year. The largest import seems to be of T cloth and gray shirting, then prints, white shirting, flannelets, sheeting, tanjibs, muslin, and colored goods. These goods come from Great Britain and Italy, with a few from Austria and Germany, and a trifle from the United States and other countries.

The climate of Syria is hot and dry in summer, and rainy but comparatively warm in winter, so that except in the mountainous regions, heavy clothing is not usually required, and lighter cloths are mainly imported.

The native costume in general consists of a long robe or cloak, with or without a varicolored waist sash, a red fez, and stockingless slippers. Around the cities the European costume is being adopted more and more.

Cotton is raised in some places in Syria, but not in such large quantities as at Adana, in Asia Minor. At one time, just before the American civil war, cotton was grown more or less all along the coast from Gaza to Tyre, over an area some 100 miles long by 10 miles

wide, and there were 20,000 bales a year exported. When American cotton dropped in price after the war, cotton cultivation ceased in Syria, and has never been revived. The soil is clayey in character, and in places very well adapted to cotton, but as a whole it is not a suitable country for cotton, much of the land being available only when irrigated. Of some small lots I saw growing the staple was fairly good and would grade up well. The time of planting is April and time of picking September.

BEIRUT.

LARGE COTTON GOODS IMPORTS—STEAMSHIP AND CABLE FACILITIES.

Beirut, next to Constantinople and Smyrna, is the largest import center in the Ottoman Empire. It is situated in the middle of the Syrian coast and has an open harbor, partly protected by a breakwater. It is the successor to the ancient Berytus, a Phœnician city, and its merchants still retain the commercial shrewdness if not the enterprise of the Old World merchants, so that while Armenians handle the trade at Constantinople and Greeks monopolize the trade of Smyrna, that of Beirut is in the hands of native Syrians, with whom few foreigners are able to compete.

This port does not have the steamship facilities of Smyrna and Constantinople, and goods from the United States must be transshipped at Trieste, Smyrna, Alexandria, or other points. There are many regular steamship lines running to this port, however, so that, except for the delay and danger of damage by transshipment, there is no trouble in getting shipments from the United States as readily and cheaply as from Liverpool.

The cable charges at Beirut are unduly high, by reason of messages having first to be sent to the censor at Constantinople and no code being allowed. Only codes made up of words that will form sentences can get through the censor. The rate to Liverpool is 72 centimes (13.9 cents) a word, but to New York it is nearly 50 cents a word, which is a drawback on business with the United States, especially as correspondence would take twice as long to New York as to Liverpool.

The main import of Beirut, as of Turkey in general, is cotton goods. A leading merchant of Beirut estimates that Beirut imports annually about the following proportions of the main cloths, in pieces: T cloth and gray shirtings, 1,000,000; prints, 500,000; gray sheetings, 400,000; muslins and tanjibs, 250,000; white shirting, 200,000; flannelets, 50,000.

T CLOTH AND SHIRTINGS.

T cloth is one of the largest, possibly the largest, single items in the list of cotton piece goods imported into Beirut. T cloth is usually 24 yards long and 32 inches wide, with a colored head end. Most of the T cloth imported at Beirut is 24 yards long, but the widths in demand vary from 26 to 36 inches. Some of the lengths marked 24 yards only measure 22 yards. The weights per piece run from 6 to 12 pounds, according to width and construction. The usual construction may be taken at about 18 square.

Gray shirting is also a large import, and is the usual 38-inch, 38-yard goods. The widths vary from 34 to 56 inches, but are nearly all 38 yards in length. The most popular brand is from Manchester,

of course, is first bunched into 10-pound bundles and wrapped in separate packages before baling. Some yarn is put up in half bundles of 5 pounds each, but this is not customary. Smyrna does not do so much transshipping to the interior, so yarn is usually received there in 40-bundle bales.

The high-grade yarn all comes from England, and it is claimed that in most of it 10 per cent of Egyptian is mixed with American cotton. The Indian yarn is nearly all from Indian cotton alone, while the Italians mix from 10 to 25 per cent Indian cotton with the American, so as to cheapen the cost.

The most of the yarn imported is in the gray and is dyed locally. The quoted cost price September 15, 1907, was 7¾d. (15½ cents) per pound for 16s, and 9¾d. (19½ cents) for 20s. Of the colored yarn imported the majority is red, yellow, or green. The additional charge for dyeing runs from 1½ to 3¾ pence (3 to 7 cents) a pound.

ENGLISH PRICES FOR DYEING.

The following list was shown me by an importer as the present scale of prices charged him by a Manchester concern for dyeing, additional to the cost of the gray yarn, and he received 5 per cent off for monthly settlements: Coral, light straw, ecru, nectarine, greenish yellow, light coral, sky, pink, light sky, light cream, cream, dark lavender, lavender, light blue, and peacock, 1½d. (3 cents); lemon, 1¾d. (3.8 cents); yellow, dark coral, dark red, black, dark fawn, olive, fawn, light drab, dark drab, greenish olive, blue, bronze green, dark straw, light buff, buff, light olive, indigo sky, and slate 2d. (4 cents); pea green, 2¼d. (4½ cents); crimson, light coffee, coffee, dark aniline orange, aniline orange, dark claret, claret, violet, dark buff, light green, aniline green, 2½d. (5 cents); orange, dark aniline green, dark aniline blue and pink, 2¾d. (5½ cents); medium green, dark green, 3d. (6 cents); very dark green, aniline black, 3¼d. (6½ cents); indigo blue, 3½d. (7 cents); dark alizarine red, 5d. (10 cents).

The yarn trade is much more a cash business than is the cloth trade. A good deal of the English yarn trade is cash before shipment, while the bulk of it is probably cash against delivery. Of course with their best regular customers they have special arrangements. Also some of the Syrian merchants have their own branches in England, in which case they make their own arrangements. The Indian mills ship on cash against documents, but this is usually taken to mean cash against delivery, and the banks are instructed to hold paper until the shipment arrives. The Italians give time, or else give a 5 per cent discount for cash in two weeks.

JERUSALEM.

AMERICAN BUSINESS ENTERPRISES—VALUE OF THE TOURIST TRADE.

Jerusalem is a walled city of probably 60,000 inhabitants, of whom some 40,000 are Jews, 13,000 Christians, and 7,000 Moslems. One of the most progressive associations at Jerusalem is that known as the American colony, of which, though there are other nationalities included, the majority are Americans. They run various lines of enterprises, especially that of manufacturing souvenirs from olive wood. They keep a store, at which they sell such souvenirs, rosaries, crosses, ornaments in mother-of-pearl, articles in black stinkstone,

albums with olive-wood backs, books of pressed Judean flowers, etc. The majority of the articles they sell are made by themselves. In fact the industry, of which there is an export of some 500,000 francs ($96,500) a year, has been developed at Jerusalem by the Americans. They also import a few American goods for their own use. About half the people of Jerusalem live in the suburbs, and one of the best of these is that inhabited by Jews from Bokhara and other cities of central Asia.

The natives of this rocky, barren country are very poor, and a large part of the inhabitants of Jerusalem live on foreign charity, so the bulk of the goods required there are cheap goods. There is little back country trade on which to draw, and the Bedouins and other wandering people buy in the larger marts to the north. The total trade of Jerusalem, therefore, is not large, and there seems no prospect of much advance in this line.

The trade, however, is much helped by the tourist traffic. It is claimed that 20,000 or more people visit Jerusalem each year, of which about one-half are Russians, the remainder being from every nation in Europe and the United States. There are a great number of wealthy tourists, who scatter much gold, not only for souvenirs, but for staple and fancy goods, and the number of such tourists, especially from the United States, is increasing yearly.

SUPPLIES OBTAINED MAINLY FROM BEIRUT.

Commercially, Jerusalem is tributary to Beirut. There are practically no importers of piece goods at either Jerusalem or Yafa. The merchants of Jerusalem make frequent trips to Beirut, and get their stock of goods in that market from the big importers. They usually have to pay part cash, but the larger merchants get three months time on the remainder. Some, of course, have special arrangements. The smaller merchants have to pay all cash, or else buy somewhat on the installment plan, paying so much each week to an agent at Jerusalem of the Beirut importer.

If an American firm were to establish a supply house at Yafa, it could get much of the Jerusalem piece goods trade, but a large stock would have to be carried, and the enterprise would hardly pay. From Beirut goods can be obtained at Jerusalem in three days, with good connections. To Jerusalem merchants with whom they have a long established business the Beirut importers give long terms—three, four, five, or sometimes up to twelve months. For cash they offer discounts ranging up to 12 per cent. On the few goods imported into Jerusalem direct by two or three of the largest merchants the English demand cash against delivery, but Germans, Austrians, and Italians give credits up to six months from shipment, or four months from arrival of goods.

Business has been bad at Jerusalem for the last two or three years. This is partly due to the fact that the people there are largely supplied with money from abroad, and as half of the Jews are from Russia the Russo-Japanese war affected them considerably.

CLASSES OF PIECE GOODS USED—YARN IMPORTS.

The T cloth, shirting, and prints at Jerusalem come from England, all others from the Continent. There is a large sale of T cloth, in all widths, and of cheap prints. The T cloth widths run from 20 to 34

inches, and are supposed to be 24 yards long. The prints are mostly the regular Manchester 31–32 inch, but there seems here to be a good demand for prints 35–36 inches. The fancy prints come from France, and are about 60 centimeters (23.6 inches) wide. The standard English gray and white shirtings have a good sale in the various sizes, mostly 38-inch, 38 yards, in the first, and 35-inch, 40 yards, in the second. The pure finish is preferred. Tanjibs, for head coverings, etc., come mostly 33 to 35 inches, 16 to 20 yards. Drills are a small import, mostly solid dyed or striped. Most gray drills are cotton and linen goods. Brilliantines are largely sold. There are few flannelets on the market. Woven goods are sold in fair quantities, especially Oxfords.

There is a small quantity of yarn imported, mostly in the gray or in black. Very little colored yarn is imported, as the gray is dyed locally, with indigo and aniline dyes. Most of the yarn is 20s and is used for making cotton stockings and knit work. There are only about 20 hand looms at Jerusalem, and their production is not noticeable. The weaver makes 3 to 5 yards of narrow nankeen a day, and sells it for about 10 cents a yard. There are also some similar narrow hand-woven goods imported from Egypt, which are used for Bedouin tents and for coarse wearing apparel. This is all in the gray.

MAILS AND FREIGHT RATES—RETAIL MERCHANTS.

Letters from the United States arrive in about seventeen days, from England in ten. The freight from Yafa to Jerusalem is 1 franc per bale. The total charges from Beirut to Jerusalem is 12 francs ($2.12) a bale. This includes loading, water and land transportation, passing customs, cartage, etc. The value of a bale may be roughly taken at 800 francs ($154.40). The large bales are repacked at Beirut, or very often at Yafa, into smaller bales, so as to be handled by men at Jerusalem and other places in the interior.

Most of the merchants at Jerusalem are Jews with some Syrians and a few Germans. The retail cotton piece goods trade is concentrated on the Street of David and its adjoining alleys. This is a narrow, dirty thoroughfare that slopes down from the Tower of David to the old hospice of the Knights Templars. It is paved with Belgian block, and stepped or terraced, so that it would be impossible to drive down it even if it were not so narrow. It is always crowded, but loaded donkeys are driven up and down through the pushing crowd. The merchants have their goods in little open stalls on either side. As usual in such bazaars, different shops specialize on prints, on T cloth, or some other line. Some of the Jews have shops in their own houses. These are especially to catch the trade of the women, who do not like to go into the crowded public bazaars.

HAIFA.

PRESENT AND FUTURE IMPORTANCE—FREIGHT RATES AND ROUTES.

Yafa, Haifa, Acre, and other small ports are supplied from Beirut, and are not of much interest to the exporter of piece goods. Yafa's only importance is as an entrance way to Jerusalem, but, as the harbor is small and full of jagged rocks, it is a very inconvenient entrance, and if the contemplated railway from Haifa to Jerusalem is ever built Yafa will lose what little importance it now has. Haifa,

on the other hand, is a port of some promise. The harbor at present is open and landing difficult, but the sea here sweeps inland in a great curve, on the shores of which are situated both Haifa and Acre, and if the projected breakwater from the foot of Mount Carmel is ever built, as planned, the harbor thus made will be the best on the Syrian coast, and four times the size of that of Beirut. The Damascus-Mecca railway starts at Haifa, the Damascus-Derat line being really a branch, and this fact gives Haifa its present importance, and its great increase in imports in the last two years are mostly of railway material and supplies.

The freight from Beirut to Haifa is usually 1 franc per 100 kilos (19.3 cents per 220 pounds). A pier duty is levied by the town of one-half bishlig (about 12 cents) a bale. Both the pier and custom-house are very small, and are to be enlarged shortly. Lighterage is 3 piasters (13.2 cents) for 100 kilos or under, 4½ piasters for 100 to 200 kilos (19.8 cents per 220 to 440.8 pounds), and above that by arrangement. In buying from Beirut the merchants formerly got nine months time, but credits are being contracted, and six months is now about the limit. The Haifa business is too small for the United States, as most of the goods ordered are in half-bale lots, and as the minimum freight from the United States is $10, the local merchants could not afford to order in small quantities as they do, not only from Beirut but, to a certain extent, from Europe. The minimum freight charges are as follows: From Marseille, 96.5 cents; from Germany, $1.93; from the United States, $10.

Goods from the United States formerly went by the Hamburg-Amerika Line to Germany, and thence by the German Levant Line to Haifa, and took over six months. Freights have been much expedited of late, but the quickest to be figured on now is about five weeks, by the Austrian Lloyd Line to Trieste, and there transshipped for Haifa. From Liverpool the route to Alexandria, and thence to Haifa, by the Khedivial Line, takes only three weeks. If shipped by the Prince Line the goods are transferred at Smyrna, but as stops are made all along the coast the time from Liverpool this way is usually four weeks.

DAMASCUS.

IMPORTANCE AS A TRADE DISTRIBUTING CENTER.

Damascus is probably the oldest surviving city of the world, and is one of the most oriental of oriental cities. It is therefore strange to find that it is the first city in the Ottoman Empire to feel the vivifying influence of electricity, but along its narrow streets and through its kaleidoscopic crowds runs a modern electric trolley line. The contrast there presented, as the horn of the motorman warns the Bedouin with his slow camel kafila off the track, is almost startling, and is but an instance of how, all around the world, in the present decade as never before, the old order is giving way to the new.

Damascus is the largest city in Syria, the meeting place of many peoples, and the best point in Asiatic Turkey at which to study the costumes and the textile requirements of the inhabitants. While Smyrna and Beirut are the two importing centers of Asiatic Turkey, Damascus is the largest interior distributing center, and the products of Manchester, Solingen, and Chicago meet here on the counter with

goods from Bokhara, Bagdad, and Mecca. The city is 91 miles by rail from Beirut and beautifully situated among green groves at the foot of the Lebanon Mountains. The Barada (the old Abana), the Nahr el-A'waj (the old Pharpar), and other rivers make and preserve a green valley that is wonderfully fertile, being shut in by ranges of mountains from the surrounding barrenness, but naturally does not impress the European as much as it does the Arab from the desert. It is a very good fruit section, its peaches rivaling those of California, and in other hands its fruits would be unsurpassed.

Damascus lies at the crossroads of three continents, and at one time was one of the most important commercial centers of the world, being the connecting link between the East and the West, and the starting point of the great caravan traffic to Egypt, Persia, and other sections. The Suez Canal destroyed much of its importance by diverting the growing flood of commerce to another channel. The streets of Damascus are so crooked that one that happened to run straight for half its length was named the Straight street. Being so narrow and crooked, many are not available to teams, and much of the transportation is on donkeys or on the backs of porters.

POPULATION AND BAZAARS.

The present population is estimated at between 200,000 and 250,000, but as the Turks are forbidden by the Koran to take any census, this is an estimate only. About three-fourths of the people are Mohammedans and the other fourth Christians, Jews, Druses, etc. The people of all sects are very fanatical. There are some 12.000 Turkish troops stationed here regularly.

The city is famous for its bazaars, which, next to those of Constantinople, are the largest in the Levant, and everything is sold from a candle to a camel. These bazaars consist of small stalls or dens, usually some 8 feet square, elevated a couple of feet above the ground. Here the merchant sits, cross-legged, with his goods on shelves around him, within convenient reach. The street extends across from one shop to the other, without sidewalk, and past the salesman, within 3 feet, surges the travel of the city in endless procession, carriages and horsemen, donkeys, strings of camels, flocks of goats and sheep driven by Bedouins, pedestrians of all kinds, from the smart officer in his red fez and stiff European uniform to the fellaheen in squares of brown and white striped bagging.

The trades congregate in separate bazaars, or streets. Thus there are bazaars for the coppersmiths, the saddlers, the drapers, the goldsmiths, the fruit bazaar, the cloth bazaar, etc. One is called the Greek Bazaar, from the number of Greeks trading there. This deals mostly in curios, antiquities, inlaid work, carpets, and other things to tempt the tourist. In this bazaar street there is a block of shops in the European style, with glass fronts, counters, etc. The Greek Bazaar and the Straight Street Bazaar are the two largest, and both are roofed. Curved iron supports run from one shop roof to the opposite roof and on these rests the roofing. The whole bazaar street is thus protected from rain and sun, but, in spite of windows at intervals, it makes the shops very dim, except in the middle of the day.

In the Brokers' Market, where are sold second-hand firearms, ironware, etc., there are also to be found second-hand clothes from England and Germany. This is not surprising, however, for in far-away

northern India, in Peshawar Bazaar, at the mouth of the Khyber Pass, Afridis and Afghans also buy clothes that once were worn by Londoners.

THE CLOTH BAZAAR.

The retail piece goods trade at Damascus is mostly carried on in the Cloth Bazaar, which is a street running between the Greek Bazaar and the Straight Street Bazaar, and is partly covered over. Here the different retailers, as is usual in these bazaars, tend to specialize, one man handling T cloth and gray shirting only, another only prints, the next white goods, and others only the native manufactured Damascus stripes, tanjibs and head cloths, etc. This is one of the busiest bazaars in the city and is always crowded. The Damascene delights in dress, and goes to the limit of his purse. The men, especially, wear showy cloth, and like to have the best material. The women probably also do at home, but the high-class ladies are never seen in public, and even with the others it is the custom to wear black, which is silk or satin with those who can afford it, and native-dyed calico with the others. A few wear white sheets draped around them, and some wear yellow and black stripes, but black is the customary street dress for women. In Egypt the women cover their faces, from the eyes down, with a thin black or white veil, but in Damascus, and most parts of Turkey, they always wear a square of art muslin covering the entire face. This is exactly the same kind of printed art muslin that in the United States is used for cheap curtains.

GARMENTS OF THE PEOPLE.

In Damascus one sees many signs that the adoption of Western styles is increasing. The Turkish officers wear European uniforms, as a matter of course. The Turkish effendi or gentleman now almost invariably wears European garb in public, all except the head gear, which, with all classes, is the inevitable red tarbouche. Many of these wear oriental clothes at home and European costume abroad, and in shifting from Eastern to Western clothes seem to shift their habits, if not their opinions, also. The European shoes worn are on the French style, long and narrow in front, and are usually yellow or red. For the people generally the slipper without heel or back is the style, while heavy, hobnailed boots are worn by the peasants. The Christians are rapidly adopting European clothes as a mark of distinction.

The people ordinarily wear a long robe or gown called a "kumbaz," made of red and yellow stripes. This reaches nearly to the ground, and, except for a suit of underclothing, is the sole garment. These gowns for the men are made of various materials, satin, prints, flannelets, native cloth, etc. On the head is the fez, and on the stockingless feet the native slippers. Many wear a fancy cloth bound around the waist as a sash, into which they stick their matches, knives, pistols, or whatever else they wish to carry. It is becoming more and more the custom to wear a European coat outside this long robe, and the wearing of stockings is also becoming general among the shopkeepers and well-to-do classes. These are nearly all cheap German or Austrian socks, with gaudy horizontal stripes, and retail for 2 to 3 piasters (9 to 13 cents) per pair. The people, as a rule, wear their clothes night and day, which causes them to wear out sooner than they otherwise would.

COTTON GOODS TRADE.

One of the most striking features of the cotton piece goods trade at Damascus is the prominence of T cloths. One of the largest merchants I met estimated that of the total cotton cloths imported into Damascus 70 per cent consisted of T cloth and gray shirting. These are seen everywhere side by side with the native manufactured Damascus stripes. Damascus, in this respect, differs from Beirut, where the leading place in the local trade is taken by prints. Sheetings and drills are imported at Damascus, but not to any large extent. Next after the T cloth and gray shirting seem to come prints, then white shirting and flannelets.

The T cloth comes in various widths, running from 20 to 36 inches wide and from 4 to 9 pounds in weight. Probably the most common is the 30-inch, weighing 7 pounds. The lengths are all 24, so marked, though a good deal of it measures 1 to 2 yards short, which fact is known by the dealers, if not by the purchaser. It is used for many purposes, and is called "khum" by the native. A good deal of it is dyed and used for the long outer clothing. The most popular brand is distinguished usually by a narrow green head end. A popular Mexican brand sold is 37½ inches by 39 yards, and is 18 by 18 construction.

Gray shirting comes in various widths and weights, the most popular seeming to be the 8¾-pound, 37½-inch goods. White shirting is called "madam," and is mostly 32, 34, and 36 inches wide and 40 yards long. The soft finish is the most popular.

Prints are mostly the shirting print, 31–32 inches wide; there are some 29-inch and narrower prints, and some wide prints, but the narrow prints on the market, mostly inferior qualities, are not so much in demand. The 29-inch prints are mostly 17 square, while the 31–32 prints are mainly 19 by 17, 20 by 20, 21 by 18, and 22 by 19, and similar constructions. The average retail price is about 2½ piasters, (11 cents) a pic, or 15 cents a yard. The usual prints are in 50 to 60 yard lengths, while the cheaper prints run up to 70 yards.

Tanjibs are called locally "shersh," and are largely used for head dress, etc. They usually come in 18 to 19 yard lengths, sometimes marked 20, and retail at 10 to 50 piasters (44 cents to $2.20) a piece, according to quality.

A good deal of ordinary printed muslin, especially red and white zigzag-stripe prints, is also imported and used for head covering for the Arabs and others. A quantity of large bandanna handkerchiefs is also imported for the same purpose.

Cloth is sold by the pic of about 27 inches. It is bought by the yard; from the Continent by the meter (39.37 inches). The retailers on prints and some other lines seem to fix their selling price per pic at the same as their buying price per yard. Thus, on the ordinary 31–32 inch print, 20 by 20 construction, the price now paid by the retailer is about 2 piasters 30 para (10.1 cents) a yard, and six months time, and retails the same for 2½ piasters (11 cents) a pic.

MARKET REQUIREMENTS AND BUSINESS METHODS.

If Americans get into the textile market at Damascus they will have to offer a better article than is now on the market at a reduction, for the people are conservative and certain brands of white shirting and prints have become standard articles with them and

would be hard to displace. At the present time, however, a reduction in price seems to have a wonderful effect, even a 2 per cent reduction, and the Italians and others on some lines are getting a strong foothold. The continental countries give from three months up, the English follow suit where they are not able to control the market otherwise, and it is probable that Americans would have to do the same to build up any large trade. An American drummer, speaking French fluently, with a supply of neat head ends, and able to quote prices, could at least get a foothold, and, if the goods come up to sample, this could be enlarged; but samples with prices are the only way to arouse attention, as the people always want to see what they are buying, and especially to ascertain the feel of the goods.

In shipping goods to a Damascus merchant drafts should be made to the Syrian merchant, but drawn against the Imperial Ottoman Bank at London. The head bank at London then sends the draft to its branch at Damascus for collection. The rule there is three months credit, or else a discount for cash. The latter is preferable.

Most of the retail shops buy from the larger commission firms. These usually insist on part payment in advance, and then send a man around every week for a further payment, so it is really an installment business. There are many small merchants in this city, and this creates much competition, so that on many articles there is very little difference between wholesale and retail prices; on others, say on standard articles, like certain prints or shirtings, there seems to be a good margin for some one, though it is oftener the intermediary who has the exclusive agency.

CHANCES FOR AMERICAN AGENCIES—YARN IMPORTS.

Commercially Damascus is a dependency of Beirut, and the bulk of its goods are bought at that point. There are very few Damascus houses that import direct. One of the largest of those which does so is a German firm who say they are willing to handle American piece goods if samples are sent them and they find that prices admit of competition with goods from other countries. This firm, being a large one, can pay cash against delivery, if found to their interest. This is a large and reliable concern, and it would pay to send them samples and prices. They would prefer to get in touch with the manufacturers direct and cut out all middlemen expenses. [Name of firm on file in Bureau of Manufactures.]

The son of the American consular agent at Damascus is at the head of a combination of some dozen firms who make inlaid work, fancy furniture, copper and brass work, etc., for the tourist trade, and who do a good business in the United States in this line. This gentleman also handles a few American articles, and wishes to form a connection with some American manufacturer or commission agent to handle cotton cloth on commission, as he is in position to place goods to advantage. [Name on file in the Bureau of Manufactures.]

There is a good import of yarn at Damascus, which is mainly used for native weaving, as the present high price of foreign goods is stimulating the native hand industry.

On gray yarn India supplies about 70 per cent and Italy 25 per cent. The main numbers used are 6s, 8s, 10s, 12s, 14s, and 16s. The Italian yarn in these numbers is one-fourth Indian and three-fourths American cotton, but the Indian yarn, made of all Indian

cotton, can be sold cheaper, and thus has the lead, though the Italian yarn is the best spun.

On bleached yarn of finer numbers, 12s, 14s, 16s, 18s, 20s, 22s, and 24s, England sells about 80 per cent and Italy 20 per cent. There is noted a tendency for the sales to Homs and Hamah to diminish, as they now order from Beirut instead of Damascus. Mercerized yarns have a smaller sale, and are supplied partly by Manchester and partly by Milan.

Ply yarns are largely used in the native weaving of table covers, bedspreads, and such goods, as well as in garments, and have a large demand in numbers from 12s to 30s, two ply. The Indian cotton is too coarse for this work, and English and Italian yarn made of pure American cotton holds the market. England supplies about 50 per cent, Italy 40 per cent, Belgium 5 per cent, and India 5 per cent.

Colored yarns, for the most part red, yellow, or black, 16s, 18s, 20s, 22s, 24s, 26s, and 30s, come 70 per cent from England and 30 per cent from Italy. In colored ply yarn, 20s, 24s, 30s, 35s, 40s, 70s, and 80s, two ply, the import is divided between England and Germany.

DAMASCUS MANUFACTURES.

Damascus is not only the center for the distribution of foreign goods in Syria, but it is the center of native manufactures of all kinds, especially of cotton and silk goods. It has some 10,000 cotton and silk hand looms, besides a large number of carpet looms and carpet frames. Cotton manufacturing is also carried on at Homs, Sikkim, and other places, but probably more than one-half the native goods are manufactured and sold at Damascus. The looms used are very primitive in most cases, the majority being of the old throw-shuttle type. The cloth mostly made is the Damascus stripes, but a smaller amount of fine goods, of some artistic merit, is also turned out. There is quite a little weaving with tinsel and imitation gold and silver threads, some of this for table covers, etc., being largely purchased by tourists. About the coarsest cloth is the abayeh, or Arabian mantles, made in broad brown and white stripes, the common wear of the poorer Bedouins and fellaheens. This is very rough cloth, and runs from about 8 to 16 ounces to the yard.

For the coarse goods the local spun cotton is largely used. For the finer goods foreign yarn is imported, and also, to some extent, for the medium grade goods, the yarn usually being imported in the gray and dyed locally. The yarn so imported is 4s to 30s, the bulk of it being 20s.

DESCRIPTION OF THE STRIPED GOODS MADE.

The Damascus stripes are largely worn by the people, and the majority consists of narrow red and yellow stripes. A typical stripe, probably the most common of all, is made of 19 red and 15 yellow warp threads alternately in a 20-inch width, using black filling. The construction is 48 filling threads per inch and averages 85 warp threads per inch, but the reeding is irregular, the 15 yellow ends being crowded into just half the space of the 19 red ends. This irregular reeding makes a stronger cloth. Another very popular design consists of red stripes of 24 ends alternately, with a series of closer reeded stripes made of 6 white ends, 4 green, 3 red, 5 white, 3 red, 4 green, and 6 white. The filling is black, and the width 20

inches. These two are typical patterns, such as are worn by merchants and business men. A somewhat gayer pattern, often seen, is composed of 18 white warp ends, 24 yellow, 18 white, 48 black, 18 white, 44 red, 18 white, 48 black, there being 8 repeats in 19 inches. The filling is white, 32 picks to the inch. This piece is heavily starched and of cheaper quality than the first two. The regular length of the native stripes is 9 pics of 27 inches each, or $6\frac{3}{4}$ yards, and it is retailed by the piece. Manchester and Germany have some imitation stripes on the market which have a small sale.

The trade of Damascus is large, and is increasing, and this would seem to indicate a rather more prosperous condition of the fellaheens and Bedouins (the settled peasants and the migratory pastoral tribes), as it is on them that the trade depends. Damascus and Beirut are the important points in Syria, with Alexandretta and Aleppo next.

EGYPT.

DECLINE IN PRODUCTION OF TEXTILES.

MANUFACTURING NOW LIMITED TO ONE MILL AND SCATTERED HAND LOOMS—CAUSES OF PRESENT CONDITIONS.

Cotton manufacturing is not a very promising industry in Egypt. There is only one cotton mill in the country, which in this respect is behind all other cotton-raising countries, where the tendency is for the cotton mills to go to the cotton fields. The sole representative in Egypt of the world's greatest industry is the Anglo-Egyptian Spinning and Weaving Company (Limited), which has 20,000 spindles and 500 looms, and is located at Alexandria.

Until the first of this year there were two cotton mills in Egypt, but the other one, The Egyptian Cotton Mills (Limited), of Cairo, has ceased operations, and the machinery has been sold and will be shipped to Mersine, near Tarsus, in Asia Minor, where it will be run on coarse counts using local cotton. This mill operated 20,000 spindles and 360 looms. In the early part of the nineteenth century, before the present variety of Egyptian cotton had been evolved, there were several small cotton mills started in Egypt. These did not have much success and soon disappeared. In the last years of the nineteenth century more determined efforts were made to bring the cotton mills to the cotton fields of Egypt, but once again there has been failure, so that now only one mill survives.

HANDICAPS TO COTTON MANUFACTURING.

One adverse factor is that the English Government, while very friendly to cotton raising in her possessions and countries where her influence is paramount, is unfriendly to cotton manufacturing in those lands. Local cotton factories would, other things being equal, have quite an advantage over Lancashire by having no freight and no duty to pay. To counterbalance this, the English Government, through the influence of Lancashire, placed an excise tax, equal to the duty, on the production of all cotton mills in such countries. The Indian mills therefore pay 3½ per cent excise tax on all goods manufactured, but the Egyptian handicap is much greater, as the duty is 8 per cent, and an equivalent special tax is a great drawback to cotton manufacturing.

The insufficiency of efficient help available, however, has probably had the largest effect in retarding the industry, together with the fact that the first cost of the machinery and the supplies are much higher than in England. The climate also is unsuitable for cotton manufacturing. The wages paid are much higher than in India, while the workers are but little if any more efficient. It takes two or three operatives to do the work of one English operative. The native Egyptians do not seem to take to the steady indoor work of a cotton mill and labor has to be obtained among other nationalities to *fill out*, and some have to be imported at quite an expense to the mill. *In the* one cotton mill remaining, that at Alexandria, there is probably

as much diversity of peoples and languages represented as in any mill in the world. There are Egyptians (Copts), Arabs, Turks, Syrians, Russians, French, Italians, Moors, etc., the manager saying that his pay roll showed 17 languages spoken among the 600 operatives.

DESCRIPTION OF THE EXISTING MILL—CLASSES OF OUTPUT.

This mill is situated on a canal on the outskirts of Alexandria and is a one-story brick building. The weave shed has a saw-tooth roof and cement floor. The humidity is regulated by large tapering tin pipes conveying steam into the room through outlets at various points. Belting is little used, as rope driving is employed not only for the main drive and for counters, but also for the direct drive to the spinning frames. The spinning frames are placed according to the usual English practice across the mill, so that the light shines down the aisles between the frames, and the driven pulleys are all in the middle alley down the length of the room. The two lines of shafting run down the sides of the room, and long quarter-turn drives convey the power to the driven pulleys of the spinning frames. In the case of such long quarter-turn drives the manager stated that he preferred the ropes where he had a good rope splicer, but that if such an operative was lacking they were a source of much annoyance.

This mill both dyes and bleaches. Raw stock dyeing is not used, all dyeing being on the cop. The quality of the bleaching is very good, being aided by the fact that Egyptian cotton is specially adapted to bleaching, both the brown Mit Afifi and the whiter Yannovitch giving beautiful results.

Both yarn and cloth are made for sale, the largest part of the output being coarse goods. Ring frames are used and the average number spun is under 20s, but there is also a small production of white shirting, jaconets, and sateens made from about 50s yarn, for which the Yannovitch cotton is used. The goods made are mostly coarse gray sheetings, tanjibs, drills, shirtings, and colored stripes for the Arabs. These latter are stiffly back starched and run through steam calendar rolls to give the hard, brilliant finish preferred by the Arabs. The weaving embraces quite a variety of cloths from the coarsest two-harness goods 10 by 10 ends per quarter inch and 12s yarn to sateen goods made on dobbies from 50s yarn, and including colored goods made from either one or two warp beams. The looms are made for cloths from 24 to 40 inches, and there are a few dobbies. The main gray goods are 17 by 13, 13 by 13, and 14 by 12 constructions. It is interesting to note that this mill makes an imitation American sheeting that it labels "Cabot" after the well-known American mill brand of that name. This is 13 by 13, 32-inch, 24-yard goods, though the name is also put on a still coarser grade. The weavers run one to three looms, mostly one or two, and the prices paid vary according to the cloth. On heavy sheeting 14 by 12 construction the price is 9 milliemes, say 4½ cents, per 24-yard cut.

YARN AND CLOTH EXPORTS.

The yarns are bunched in a bundling press as usual into 10-pound packages, paper covered, and then put up into 50-bundle, 500-pound bales. About one-third of the yarn output is sent to Turkey and the remainder used by Egyptian handloom weavers. On the lower counts this yarn has to stand competition with cheap yarn from India,

while the English yarns practically monopolize the high-count trade. For this reason part of the yarn is exported to countries needing yarn cheaper than the fine English and of better grade than the coarse Indian. The total yarn exported is small, however, as the following table for Egypt's yarn export in 1906 shows:

Country.	Pounds.	Value.
Turkey	363,029	$61,743
England	102,114	15,121
Austria-Hungary	2,416	360
Total	467,559	77,224

There was also exported some cloth, mainly to Turkey, but as there is mixed with this a small quantity of cloth reexported it is impossible to say exactly what proportion is Egyptian made, or how much is mill cloth and how much handmade. The cloth exported from Egypt in 1906 was as follows:

Country.	Pounds.	Value.	Country.	Pounds.	Value.
Turkey	277,168	$72,104	Greece	1,085	$338
Italy	38,962	7,073	Other countries	7,001	1,884
French Mediterranean possessions	28,458	7,390	Total	371,708	91,797
Germany	19,034	2,990			

The trade-mark of this mill is a rectangle 5 inches by 8 inches inclosing two pyramids and four palm trees, with a crocodile in the foreground.

WAGES PAID AND COTTON USED.

English machinery is used throughout. The wages paid are high as compared with Indian mills and are steadily advancing from year to year. Men start in at 6 piasters (say 30 cents) and soon get 8 to 9 piasters (40 to 45 cents) a day and over. Women and men work together and some young children are employed, both boys and girls. Spinners are paid by the day, in fact reelers and weavers are about the only hands on a piecework system. A girl running two sides of warp gets about 25 cents, but on fine weft may get as much as 50 cents. The spinners run from a half to two long sides. This Alexandria mill uses some 18,000 cantars (cantar=99.05 pounds) of cotton a year. which corresponds to some 2,500 bales, but a good portion is received in the loosely bound uncompressed bales from the gins. The majority of this of course is the Mit Afifi variety, which forms the bulk of the Egyptian crop, but a smaller amount of Yannovitch is also used for the finer goods. The percentage of waste is figured at 25. This is nearly all sold and exported except the oily waste, which is cleaned and reworked.

The working hours are from 6 a. m. to 6.10 p. m. Hands are relieved in batches for ten minutes for breakfast and the mill stops an hour for dinner at noon, so that the operating time is only eleven hours a day.

OPERATION OF HAND LOOMS.

There was imported into Egypt in 1906 2,506,199 kilograms, say, 5,526,170 pounds, of cotton yarn, of a value of £198,106, which is about $979,238. This yarn, as also a part of the production of the two

cotton mills that have been operating in Egypt and a small amount of hand-spun yarn, was consumed by Egyptian hand looms. There are no figures available as to these, but those best informed as to the industry say the number of hand looms must be something over 20,000. Some of these are very primitive, being of the old "throw-shuttle" type, where the shuttle is thrown through the shed with one hand and caught with the other. Other looms, however, are of improved European make, and production on these is claimed to be not much inferior to that obtained by the average weaver in the Egyptian cotton mill. One cotton-mill manager said that he had timed some of the best hand-loom weavers at Zagazig, where there are some 2,000 hand looms, and found them making 160 picks a minute. I did not find any as fast as that, but the speed attained on these improved hand looms is, of course, much higher than that possible on the best types even of the crude native-made looms. Some of the looms turn out as much as 48 yards a day on coarse cloths. Some weavers make very fine goods, but the majority of the goods turned out are the cheapest, coarsest varieties of sheetings and tanjibs.

EXPORTS OF COTTON GOODS TO EGYPT.

DECREASE IN PLAIN AND INCREASE IN COLORED PIECE GOODS.

According to official returns, the exports of cotton piece goods and yarns from the United Kingdom to Egypt during the calendar years 1906 and 1907, as compiled by the Bureau of Manufactures, were as follows:

Description.	Quantity.		Value.		Price, in cents.	
	1906.	1907.	1906.	1907.	1906.	1907.
Piece goods:	*Yards.*	*Yards.*			*Per yard.*	*Per yard.*
Unbleached	99,751,300	76,740,400	$3,838,530	$2,914,454	3.85	3.80
Bleached	111,756,700	92,931,500	5,907,312	5,029,785	5.29	5.41
Printed	54,896,800	59,796,700	3,728,727	4,225,942	6.80	7.07
Dyed or of dyed yarn	30,798,800	36,258,900	2,108,730	2,710,315	6.85	7.47
Total and average	297,203,600	265,727,500	15,583,299	14,880,496	5.24	5.60
Yarns:	*Pounds.*	*Pounds.*			*Per pound.*	*Per pound.*
Gray	2,354,100	1,988,600	417,799	394,702	17.75	19.85
Bleached and dyed	1,160,600	993,100	254,571	245,164	21.93	24.69
Total and average	3,514,700	2,981,700	672,370	639,866	19.13	21.46

AMERICAN TEXTILES IN EGYPT.

In a report from Consul-General L. M. Iddings, of Cairo, published in the Daily Consular and Trade Reports for November 1, 1907, the total value of all classes of textiles imported into Egypt in 1905 and 1906 is given as $30,264,245 and $30,504,175, respectively, of which the imports from the United States were as follows:

Articles.	1905.	1906.	Articles	1905.	1906.
Cotton goods	$820	$120	Clothing	$430	$550
Sail cloth	1,975	3,375	Sundries	12,340	50
Linoleum	1,145	1,020			
Linen goods	75	250	Total	16,785	5,365

GREECE

COMMERCIAL IMPORTANCE.

AN ATTRACTIVE MARKET FOR TEXTILES.

STEADY GROWTH IN SALES OF COTTON GOODS—ADVANTAGES OFFERED AMERICAN MANUFACTURERS.

Greece is an isolated country of 25,941 square miles that supports a population of some 2,500,000 people and has a foreign trade of about $40,000,000 a year. It has no railroad connection with any other country, and being cut off from the rest of Europe by the mountains of Turkish Macedonia on the north, all commerce is by sea. The principal ports are Piræus (the port for Athens), Patras, and Volo on the mainland and the island ports of Syra and Corfu. The Greeks probably number, all told, 8,000,000, of whom about 4,000,000 are in Turkey.

Among the smaller countries of the Levant Greece should be noted by our cotton manufacturers as one affording an outlet for a small but steady volume of goods. The trade in this line is increasing very slowly, but fluctuates little. By the direct steamship lines recently established goods can be landed at Piræus quicker from New York than from Liverpool, and at equal or less freight rates; so the market is now readily accessible. Greece imports annually about $400,000 worth of cotton, $300,000 worth of cotton yarn, and $2,000,000 worth of cotton cloth. The trade of the country in these, as well as in most other lines, is dominated by Great Britain.

BUSINESS METHODS—EMIGRATION HELPFUL TO AMERICAN TRADE.

In doing business with Greece correspondence, catalogues, etc., should preferably be in French. French is taught in all the schools, while English is comparatively little known. Three months' time is essential on most goods. In giving credit careful inquiry should be made in this country; but there are many reliable firms. The custom of credit is universal. On very few lines could a business be built up here on the "cash against documents" system and on none on the " payment in advance " system. The importers give long time to the smaller dealers to whom they sell, and demand time themselves to help them carry the business, and as they can always get time from one or another of the nations competing in their particular lines America will have to pay heed to the custom. The drawback to the Grecian trade is that the country is small in area and the imports almost on a retail basis, there being few merchants able to pay cash for goods before arrival and finance themselves until the returns finally come in from their six months' sales to customers. The smallness of the trade in some lines is shown by the fact that in all of

Greece there are less than 100 typewriters. While small as compared with many markets, the trade of Greece is worth cultivating, especially since the new direct steamship lines have placed the United States on a competing basis with the European nations. The Italians and Germans seem, as a rule, to give longer credits than the English, up to six months or over. Three months' time seems essential to gain any footing in this trade, but longer than that is not advisable, as a firm whose financial standing is strong enough to justify longer time would be strong enough not to need it.

One factor that should aid considerably in building up American trade with Greece is the emigration from that country to the United States. The number of Greeks so emigrating has been usually about 10,000 annually, but the new lines have greatly stimulated this: for 1906 it was 27,000, and for 1907 it will be much greater.[a] There are so many American flags flying from the flagpoles of emigration agencies at Piræus that one landing from the ship might be excused for imagining it the national flag. These Greek emigrants raise money in various ways to purchase their passage and soon begin sending back remittances to pay the debts thus incurred. Others send back money to their families or relations. It is estimated that the yearly total sent from the United States to Greece amounts to at least 40,000,000 francs ($7,720,000), and it is on the increase. Many accumulate money and return, and each one who does so tends to familiarize the people with American goods and to create a demand for American manufactures.

COTTON INDUSTRY—LOCAL MILLS AND THEIR PRODUCTS.

The cotton manufacturing industry in Greece dates from 1870, when a spinning mill was erected at Piræus, and the industry has, in spite of many ups and downs, and though still very small, contributed considerably toward the upbuilding of the country.

There are no accurate statistics in regard to the industry. One of the largest cotton brokers of Piræus, who is in a position to be well informed, gives the number of mills, large and small, at 23, distributed as follows:

Location.	Spinning.	Weaving.	Location.	Spinning.	Weaving.
Piræus	5	1	Chalkis	1	.....
Patras	3	.....	Volo	1	.....
Syra	3	2			
Livadia	4	.....	Total	17	3

The total number of spindles is estimated at 99,300 and the number of looms at 1,205, employing about 5,000 operatives. The total production is figured out at 3,600,000 skeins of yarn and 8,561,000 meters of cloth (meter=39.37 inches), 941,787 kilos in weight (kilo=2.2 pounds). Three-fourths of the industry is concentrated at Piræus. Practically all machinery is English. The mills usually run an

[a] The statistics given in the report of the Commissioner-General of Immigration for 1907 show that 19,489 immigrants came to the United States from Greece during the fiscal year ended June 30, 1906, while the number arriving for the twelve months ended June 30, 1907, was 36,580.—B. of M.

eleven-hour day and the operatives, of whom the majority are women and girls, get from one-half to 2 or even 4 drachmas a day (5.45 drachmas=$1), averaging probably about 1½ drachmas, or 27½ cents, a day.

CHANGING CLOTHING CUSTOMS—FLUCTUATING CURRENCY.

The mills make sheetings, coarse cottonades, plaids, ginghams, cotton trouserings, and checks and stripes of various kinds. The coarse cottonades, overall cloth, etc., are worn by the peasant classes, and in these lines the native mills supply the market cheaper than can be done by foreign nations, the tariff being especially adapted to aid this. The mountain regiments of the Greek army and the people in the more remote parts of the country still wear the old Greek costumes, but the bulk of the people wear ordinary European attire, and what is sometimes supposed to be the Greek national costume is becoming a thing of the past. The peasant women, for instance, are continually bringing in their old costumes, elaborately wrought with needlework, which they sell for a small price and purchase cheap Manchester calicoes.

The largest cotton manufacturing company is that of Retzina Brothers, of Piræus, who have three mills, one making yarn only, one making "American cloth" (sheetings) only, and one, using skein dyeing, making colored goods of various kinds. The three mills of this company contain 30,000 spindles and 400 looms. Five years ago the Greek textile industry was very prosperous and cotton goods were exported to Crete, Turkey, and other near-by countries. At that time it took 8.35 to 8.50 paper drachmas to equal an American dollar, but now it takes only 5.45. As the Greek exports were paid for abroad in gold and converted at home into paper drachmas to pay for cotton and wages, this rising value of the drachma has been to the disadvantage of manufacturers and has closed to them all outside markets. Only the tariff enables them to retain their hold on the home market in coarser cloths. The industry has experienced a good many obstacles, and fortunes have been lost in it, but it is to-day fairly prosperous. There are a few hand looms scattered throughout Greece, which make mostly sailcloth and coarse wearing apparel.

GROWTH AND CONSUMPTION OF COTTON.

About one-half of the cotton used in the home mills is raised in Greece and the other half is imported, the total being some 20,000 bales only. The Grecian cotton is better than that from Asia Minor, is clean, and five-eighths to seven-eighths inch staple. It is harsher than American, and the staple runs much more uneven. There are no figures available as to the outturn, but the largest cotton dealer at Piræus estimates the average crop at 2,000,000 okes, which is about 5,640,000 pounds. A small amount is used by hand workers, but the bulk of the crop goes to the cotton mills. American ginning machinery is preferred to the English. The cotton is put up in large sacks or loosely packed bales. The cotton-growing section centers around Livadia, in Bœotia, where a large lake bottom has been reclaimed by an English company.

The cotton imported into Greece is divided by the customs returns into Turkish and Indian, American, and Egyptian. The imports for the last five years are given as follows:

Year.	Turkish and Indian.		American.		Egyptian.		Total imported.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
1902	1,606,114	$126,410	1,145,718	$114,256	502,121	$66,866	3,243,953	$307,534
1903	1,800,613	149,024	1,126,009	112,735	178,248	20,120	3,104,870	281,879
1904	2,280,675	187,372	1,066,667	107,686	697,545	74,268	4,044,887	369,326
1905	2,496,797	196,512	1,741,356	172,808	417,122	47,111	4,655,285	416,431
1906	2,685,508	217,261	2,025,513	191,492	347,768	37,735	5,058,784	446,488

COMPLAINTS REGARDING AMERICAN COTTON.

The cotton shown as Turkish and Indian is nearly all Turkish, being imported from the two Asia Minor ports of Smyrna and Mersina, and mostly raised in the section around Adana. About 400 bales of Indian cotton were imported last season. It was very dirty, and the mills found difficulty in mixing and working it satisfactorily with the other cottons, and will hardly import any more. The American cotton is preferred, but the manufacturers complain, in regard to shipments from America, that some bales are falsely packed, some have sand, and one manufacturer reports a recent shipment which turned out to be entirely sweepings. In this latter case the American cotton broker declined to replace with cotton as ordered, but offered to make an allowance for the deficiency. As the mill can not work sweepings, the matter had to be settled by arbitration. Some of the importers claim they have to order through London simply for this reason, though the freight rate from Liverpool is 32s. 6d., as compared with 30s. per ton from New York direct. The freight rate from New Orleans to Piræus, on account of transshipments, is excessive, being 52 cents a hundred pounds.

Local cotton is sold by the oke of 2.82 pounds, the present price being 1.8 drachmas per oke, which is about 11.7 cents a pound. The American grades imported are mostly good middling and fully good middling, the latter being now (October, 1907) quoted, landed at Piræus, at 7.5d. (15 cents) a pound, the middling price corresponding being 6.82d. a pound. One of the largest importers of American cotton [name on file at Bureau of Manufactures] desires to form a connection with an American cotton manufacturer or commission house to handle American piece goods on a commission basis.

TRADE IN COTTON YARN AND THREAD.

Of the cotton yarns imported into Greece about 75 per cent is from England, 15 per cent from Italy, and 5 per cent each from Germany and Austria, with occasional contributions from France, Switzerland, and Turkey. On most lines the Grecian importers demand time, but, being able to control the yarn market, the English, on this item, usually insist on cash against documents. The Italian competition is keen on certain lines, but they can not compete on the high-grade counts.

The bulk of the imports is coarse, unbleached yarns, mostly 8s, 10s, 12s, 16s, and 20s. A good part of this is dyed locally before use. The price of yarn seems to be lower than would allow of competition

from America. On sewing thread the market is controlled by the English. America does not seem to compete, but the Germans are making efforts to increase their present small sales. The imports of yarn and sewing thread for the past two years are given in detail as follows:

Description.	1905.		1906.	
	Pounds.	Value.	Pounds.	Value.
Unbleached:				
Under No. 24	1,807,476	$241,221	1,149,742	$153,441
Above No. 24	31,807	5,768	40,186	7,290
Bleached:				
Under No. 24	44,928	6,150	26,601	3,750
Above No. 24	13,251	2,721	13,231	2,717
Colored:				
Under No. 24	14,791	2,682	15,786	3,224
Above No. 24	10,998	2,258	4,072	819
Oil dyed, all numbers	41,674	6,978	40,250	10,467
Gray twist:				
Under No. 24	23,011	4,724	58,552	12,022
Above No. 24	3,232	774	21,776	5,216
Colored twist:				
Under No. 24			1,196	327
Above No. 24	1,328	409		
Oil-dyed twist	31,590	6,950	26,313	9,004
Sewing thread	308,232	55,896	320,724	53,059
Total	2,332,318	336,531	1,718,429	261,336

COTTON PIECE GOODS.

The cotton goods imported into Greece are prints, white shirtings. T cloths, oxfords, cotton flannels, and colored linings. The trade is monopolized by England, which exports about 70 per cent of the total, Germany about 15 per cent, and Austria, Italy, and France each about 5 per cent. Holland, Belgium, and other countries export small quantities, and at the bottom of the list there is a few hundred dollars' worth from the United States.

In gray goods England has a complete monopoly, for the reason that the gray goods imported are mainly gray shirtings and T cloths, two articles in which England supplies the world, while coarser sheetings, drills, etc., are very little imported, being made by the local mills. In bleached goods England supplies over 90 per cent, with a few coming from Germany, Austria, and Italy. In prints and colored goods in general England supplies the bulk of the trade and is followed by Germany, France, Austria, and Italy. In dyed drills and similar goods, and in trouserings, cottonades, and other coarse goods of dyed yarn the first place is held by Germany, followed by England, Italy, and Austria. Colored cotton linings are supplied by England, with some from Italy and Germany.

Batistes come from England, Austria, and Germany; muslins and tulles from England; laces from Germany and England; and grenadines from Italy. Head handkerchiefs come from England; velvets from England, France, and Germany; cretonnes from England, France, and Italy; satins from England; piques from England; and cotton flannels from England, Germany, and Italy. Braids, tapes, and similar goods are supplied by Italy; ribbons, etc., come from England and Germany. Socks are furnished by Germany and Austria; underwear by Austria, England, and Germany; and ready-made clothes by England.

DETAILED COTTON GOODS IMPORTS.

The following list shows in detail the cotton goods imported into Greece in 1905–6.

Description.	1905.		1906.	
	Pounds.	Value.	Pounds.	Value.
Unbleached cloths:				
36 threads[a]	1,312,521	$212,702	1,435,166	$240,844
44 threads[a]	78,478	16,113	11,379	2,336
56 threads[a]	7,072	1,694	6,799	1,629
Bleached goods	1,103,088	341,992	1,065,447	329,670
Printed and colored goods, not specially mentioned	1,845,109	631,336	1,885,872	645,342
Colored cottons, such as colored drills and stripes, twills, checks, and similar goods for use of laborers	356,950	195,436	294,361	161,173
Colored linings	401,384	139,748	391,450	133,953
Wicks, etc	14,136	2,128	15,755	2,372
Boot straps	8,333	855	5,934	586
Cotton belting	7,262	3,876	12,591	6,721
Batistes	10,504	20,130	11,438	21,919
Gauzes	1,985	3,804	14,664	28,101
Muslins	87	168	178	340
Grenadines	524	1,005	20	38
Tulles	1,926	3,691	2,335	4,475
Laces	11,630	22,286	10,112	19,379
Head scarves	1,009	2,764	505	1,222
Cotton linens	89,963	92,356	87,287	89,609
Made-up goods, except ready-made clothing	6,551	6,740	9,303	9,551
Velvets	51,493	28,193	58,238	32,323
Cretonnes	56,231	30,787	61,030	33,415
Satins	51,284	27,693	65,624	35,930
Piques	23,671	12,960	37,731	20,659
Garters, ribbons, edgings, Spanish and Indian muslin above 75 threads	103,184	76,453	137,585	65,914
Head handkerchiefs	2,783	3,329	3,743	4,610
Socks	38,369	21,991	49,564	27,137
Remnants, except madapollams	13,699	8,438	12,101	7,448
Cords and braids	22,501	10,781	21,192	10,153
Cotton flannels, white or colored	199,363	65,493	231,040	75,885
Toilé á voilé	32,670	4,919	30,346	5,871
Ready-made clothes:				
Men and boys'	.....	9	141	12
Women and girls'	186	453	1,810	4,279
Total	.....	1,990,323	.....	2,022,896

[a] Contained in a square of 5 millimeters side [millimeter = 0.03937 inch].

The Greek Government issues quarterly reports detailing the exports and imports, and also a final yearly report. This latter, possibly due to corrections, rarely, if ever, gives totals exactly corresponding to those of the four quarterly statements. The annual statement does not come out for a year after, so the 1906 figures I give are those obtained by adding up the quarterly statements and then converting to pounds and dollars. The yearly report when issued will probably give figures slightly different, but not materially so. The Greek custom-house returns are not kept very accurately, but their figures are valuable as showing the general trend of the trade in different lines.

The foregoing figures for the past two years show not only about the same amount of goods taken each year, but almost exactly the same amount of each kind of cloth. This remarkable uniformity in the consumption of each kind of cloth has existed for some time, with a slight upward tendency.

PRINT GOODS PREFERENCES—STYLES OF WHITE SHIRTING DESIRED.

Prints of various kinds probably constitute the largest single import item. Shirting prints constitute the bulk of this, though there are also good amounts of printed muslins, flannelets, etc. The shirting print needed is wider and of finer construction than the standard

American print, the demand being for a 31 to 32 inch wide print of about 17 by 18 or finer construction. The poorer classes wear coarse cottonades, checks, stripes, etc., made in Greece from lower-grade cotton, and the consumption of prints is more by the better classes, so the result is a demand for a good quality in this line. The majority of the prints are also more stiffly starched than the American, though very heavy sizing is not favored.

White shirting is probably the next largest cloth import and is employed for all kinds of dress and household use from bed sheets to the short fustanella skirts, resembling those of ballet dancers, worn by the Efzones and other highland regiments in the Greek army. The English makes of white shirting that have the greatest reputation here bear the trade-marks of "Croydon" and "Horrockses." The widths imported run from 31 to 88 inches, and the finish varies from the pure sized to a stiff finish with over 50 per cent sizing. The white shirtings in largest use on the Athenian market are as follows:

(*a*) A white shirting of the Croydon make, 31½ inches wide, 18 square per quarter inch, that comes in 24 and 38 yard lengths, and is retailing in Athens at 50 lepta a pic, which is about 13.9 cents a yard.

(*b*) A white shirting stamped "Cambrick Français, British Mfg., Helen CBA," that has a cambric finish, is 32½ inches wide, 20 square, and retails for 55 lepta a pic, or 15.3 cents a yard.

(*c*) A white shirting, same price as (*b*), but 34½ inches wide, 18 by 17, and has somewhat coarser yarns.

(*d*) A fine-finish white shirting, 35½ inches wide, 20 by 19, that retails at 65 lepta a pic, or 18 cents a yard.

(*e*) A longcloth with the brand of Horrockses, Miller & Co., 36¾ inches wide, 25 by 22, that retails at 85 lepta (16.4 cents) a yard.

(*f*) White shirting for bed sheets. This is mostly 16 square and comes in five widths, 48, 66, 72, 84, and 90 inches. The 72-inch width retails at 2 drachmas a pic, or, say, 55 cents a yard, and the others in proportion.

LARGE IMPORTATIONS OF GRAY GOODS.

T cloth is largely imported and is used for many purposes—for clothing and household use, for light bags, for spreading over raisins while drying, etc. Gray shirting is also a large import, and the two constitute the bulk of the import of gray goods. There is very little sheeting or drills imported, as the little demand for these is supplied by the local mills. Occasionally one sees in a shop a few pieces of "Lyman" or other American sheetings, but the total is trifling, and there is no opening here in that line. The gray shirtings are the well-known English makes, and mostly 38½ inches wide and 39 yards long. Usually for gray shirting a head end is made with a few picks of coarser yarn, but colored head ends are also used here, a solid green heading about 1 inch wide being perhaps the most common. The T cloths are always made 24 yards long, and the standard width is 32 inches, but this market uses also narrower widths down to 29 inches. T cloth always has a colored heading and the width and color of the heading is varied to suit the importing merchant. Green seems to be the color most used for the headings as imported into Greece, a common heading being about one-eighth inch red filling, 1¼ green, and then one-eighth inch red, making up a 2-inch heading. The constructions used for the T cloths are mostly 16 and 18 square,

and the weights 7 and 7½ pounds to the 24-yard piece, but some heavier grades are used in smaller quantities. The 30-inch, 16 square, is now retailing at 14 drachmas a piece, say 11¼ cents a yard, and the 32-inch, 18 square, at 16 drachmas a piece, say 12.9 cents per yard.

Consular reports from Greece have made reference to a "Howell" cloth. This is a T cloth called after one of the most popular makes. In the same way the buyer here often calls for "Croydon" or "Horrockses" cloth, meaning the brand of white shirting. In Turkey the import list does not specify "sheetings," but calls all sheetings "Cabots."

DRILLS, FLANNELS, AND WORSTEDS.

A fair amount of white drills are imported for summer suits and other purposes. These are mainly the 28-inch, 20 by 17, goods, retailing at a drachma a pic, or about 27.8 cents per yard. Cotton flannel is proportionately a fairly large import, though it is only about $75,000 a year. England supplies the best qualities and Germany the cheaper, but Italy, with her cheaper freight and longer terms, is making efforts to control trade in this line. Cotton worsteds are imported from Germany, usually in about 48-inch double widths, and have a good sale. Hollands are imported in large quantities. The retailers here call almost any light-weight colored goods "Hollands," whether striped only or whether checked or of a solid pattern. Coarse colored cottons, such as cottonades and cotton trouserings, checks, and stripes, ginghams, etc., are made by the local mills, but the lighter goods, made of dyed yarn and generally lumped as "Hollands" by the merchants, are nearly all imported, mainly from Germany and England.

Cloth is sold by the drachma per pic. The "pic" as used in Asia Minor is 27 inches, but in Greece the pic used for cloth measure is considered to be 64 centimeters, which is about 25 inches.

GREEK TEXTILE TARIFF.

The Grecian textile tariff is not levied ad valorem, but on both cotton yarn and cotton cloth is based a unit of weight of 100 okes, which is equal to 282 pounds. The duty is levied in gold francs. Greece is one of the countries in the Latin Union, which includes France, Belgium, Spain, Italy, and Switzerland. Latin Union countries recognize a coin of the value of the French franc, equal to 19.3 cents, as standard. The United States pays the conventional tariff. The present tariff on textiles is as follows (in gold francs):

Description.		General tariff.	Conventional tariff.
		Francs.	*Francs.*
Cotton		Free.	Free.
Wadding	per 100 okes	100	
Cotton yarn:[a]			
Under No. 24	do	60	50
Above No. 24	do	80	65
Bleached yarn:[a]			
Under No. 24	do	66	
Above No. 24	do	88	66

[a] For twisted yarns add 20 per cent to each subdivision of soft yarn. This does not apply to conventional tariff countries.

Description.		General tariff.	Conventional tariff.
Colored yarn:[a]		*Francs.*	*Francs.*
Under No. 24	per 100 okes..	80	.....
Above No. 24	do....	104	80
Oil-dyed yarn, all numbers[a]	do....	150	.....
Sewing thread	do....	250	150
Gray goods:			
36 threads[b]	do....	80	70
44 threads[b]	do....	96	80
56 threads[b]	do....	112	80
Bleached goods	do....	200	100
Colored and printed goods, not specially mentioned	do....	300	120
Colored goods, such as drills, stripes, and checks, for use of laborers	do....	174	.....
Colored linings	do....	300	120
Lampwicks and boot tags	do....	100	.....
Cotton belting		Free.	Free.
Batistes, gauzes, muslins, and similar diaphanous goods	per oke..	6	.....
Linen and embroidered articles	do....	6	3
Felts, cretonnes, satins, and piques	do....	3	2
Garters, ribbons, edgings, Indian and Spanish muslins above 56 threads, head handkerchiefs, socks, and remnants	per oke..	5	3
Cords, braids, etc. (if wool is not mixed in to increase value more than 30 per cent)	per oke..	5	3
Cotton flannel, bleached or unbleached	per 100 okes..	120	.....
Sail cloth	do....	20	.....
Ready-made clothes:			
For men and boys, add to the regular duty on the cloth		c 50	c 40
For women and children	per oke..	25	15

[a] For twisted yarns add 20 per cent to each subdivision of soft yarn. This does not apply to conventional tariff countries.
[b] Contained in a square of 5 millimeters side [millimeter=0.03937 inch].
[c] Per cent.

It is seen that on the light cloths and on women's ready-made clothing the duty is based on the oke, but on all others on the 100 okes. The duty runs from 3.4 cents to 13.85 cents a pound on cotton yarn, and from 4.79 cents to 41 cents a pound on cotton cloths. The duty on cotton seed and cotton-seed oil is 20 francs for 100 okes of 282 pounds.

Besides the duty, all goods entering Greece have to pay port dues and octroi taxes. The port dues at Piræus are based on the duty, being one-twentieth of the duty. The octroi or town tax on all merchandise entering Athens is levied at the rate of 2 per cent of the value.

DIRECT STEAMSHIP LINES.

In many parts of the world American commerce is hampered by the fact that there are no direct steamship lines. It should be emphasized that there is no such drawback in regard to Greece, and that this market is now more accessible to New York than to Liverpool. From Liverpool freight is delayed by the steamships touching at several intermediate points or by transshipment at Naples or Trieste; therefore English freight takes from twenty to thirty days to reach Greece, as compared with eighteen days from the United States by the direct lines. The freight rate is also as low or lower from New York as from Liverpool. On cotton, for instance, the present (October, 1907) rate per ton is 30s. from New York and 32s. 6d. from Liverpool. The rate from New Orleans is still very high—about 40s. for cotton—but the Austro-American line is about starting a direct service there also, a monthly service being contemplated, so this rate will also shortly be lowered.

There are now four direct lines between the United States and Greece, as follows:

(1) The Trans-Atlantic Steamship Company, known usually as the Moraities Line. This line has but one steamship, but another is shortly to be added. It has a sailing about every fifty days and takes *only eighteen* days from port to port.

(2) The Austro-American Line. This is an Austrian line and has three to four departures a month from Patras, Greece. Hereafter about one boat a month will also be sent direct to New Orleans.

(3) The Prince Line (English) operates two steamships on the American-Greece direct route, and its sailings depend on cargo—usually about six departures a year.

(4) The Fabre Line (French) operates three boats, making irregular trips, depending on cargo available, but having five to six departures a year.

Formerly steamship connections with the United States were very bad, nearly all freight was transshipped at one or more intermediate ports, the time was two months, and freight rates prohibitive. The new direct lines—especially the establishment of the Moraities Line—has put American goods on a competing basis in Greece, a fact which should be taken advantage of by American manufacturers. The growth of this line will materially aid American commerce, for the reason that it not only runs direct to Piræus, but it also goes on to Smyrna, giving New York the long-desired direct connection with Asia Minor. From Smyrna the route leads back to Piræus and then direct to New York. At present these lines depend for their profits on the Greek emigrants, but if American shippers can fill the ships for the return trip freight rates will be further lowered and shipping facilities increased.

ITALY

GROWTH OF MANUFACTURES.

IMPORTANCE OF COTTON GOODS INDUSTRY.

DECREASED IMPORTS AND INCREASED FOREIGN SALES—LOCATION AND METHODS OF THE MILLS.

Since 1902 the industries and manufactures in Italy have taken long strides forward, and to-day northern Italy has become one of the most modern manufacturing centers of Europe. The suddenness of the advance is instanced by the fact that of the 111 firms now manufacturing automobiles and parts in Italy not one was operating under its present name in 1904, and the greater number are entirely new. The extent of the advance is evidenced by the fact that there is now more water power developed in Italy than in any country of the world, with the exception of the United States.

Silk is the most important industry of Italy, employing some 300,000 people, supplying one-fifth of the world's requirements, and Milan has succeeded Lyon as the world's largest silk center. The majority of the silk, however, is exported in only a partially manufactured form.

The greatest article of manufacture in Italy is cotton, and the product of the cotton mills forms by far the largest item in the list of manufactured goods exported. The progress of the cotton-manufacturing industry has been remarkable. Formerly Italy imported all its clothing, mainly from England, with the exception of a small portion manufactured on the hand looms in the cottages. About 1887 the present development began to get under way, and in the last twenty years it has gained steadily.

At first only yarns were made for the hand-weaving industry, but later cloth of coarse kinds, and then finer goods of more variety were successfully started. As the manufacture of cotton goods increased, the imports of foreign manufactures steadily decreased, and to-day Italy supplies all its home requirements of cotton manufactures, with the exception of a few special qualities not consumed in large enough bulk to make their manufacture profitable, and it has also sent out its yarns and cloth in successful competition with England, Germany, and the United States to various parts of the world, particularly to Argentina, Turkey, Egypt, and India.

For the last twenty years (comparing the average of the years 1886–1890 with the figures for 1906) the consumption of cotton increased from 145,011,298 to 384,410,660 pounds; the imports of cotton yarn have declined from 9,274,212 to 1,821,724 pounds; the exports of yarn have increased from 682,358 to 22,877,300 pounds; the imports of cotton goods have declined from 22,736,684 to 8,038,208 pounds; while the exports of cotton goods have increased from 1,429,514 to 61,744,840 pounds.

SPINNING SPINDLES AND POWER LOOMS.

To get exact figures in regard to the extent of the Italian cotton industry is impossible, Government figures being misleading, for the reason that cotton manufacturers are taxed on their output up to 20 per cent or more of their receipts, and in order to do business under such circumstances the manufacturers claim that it is impossible to give exact returns. Therefore figures published by the Government in regard to this and other manufacturing industries are really only approximations, and necessarily underestimates. The latest figures published by the Government are contained in the Statistica Industriale, published in 1906, but which contains figures up to 1903 only. For 1903 they show 1,693,863 spinning spindles, 240,090 twister spindles, 60,325 power looms, 4,568 Jacquard looms, operated by 138,880 workmen and using 86,992 horsepower. The cotton-mill men say that these figures, which were those given for taxation, are really at least 50 per cent underestimated even for that period. This also is proved by the fact that the Government returns for 1900 were 1,879,129 spindles, 232,041 twisters, and 60,722 looms, or actually more than shown three years later, which is impossible in the face of the customs returns showing the increase of cotton and of cotton-mill machinery imported, and of cotton manufactures exported.

The tax lists now being made up by the Government for the end of 1907, I am informed from a reliable source, will show the spinning spindles and power looms now listed for taxation in the various provinces of the various sections as follows:

Province.	Spindles.	Looms.	Province.	Spindles.	Looms.
Milan	650,000	20,000	Vicenza	40,000	.....
Bergamo	500,000	10,000			
Brescia	300,000	5,000	Total for Venetia	405,000	20,000
Como	185,000	10,000			
Pavia	140,000	2,000	Salerno	180,000	2,000
Sondrio	55,000	5,000	Naples	60,000	5,000
Cremona	.....	2,000	Caserta	30,000	2,000
			Bari	.....	2,000
Total for Lombardy	1,850,000	54,000			
			Total for Campania	270,000	11,000
Turin	610,000	20,000			
Novara	560,000	15,000	Catania	15,000	2,000
Alessandria	100,000	5,000	Messina	5,000	5,000
Cuneo	30,000	.....			
			Total for Sicily	20,000	7,000
Total for Piedmont	1,300,000	40,000			
			Genoa	200,000	10,000
Udine	200,000	10,000	Massa	35,000	2,000
Verona	120,000	.....			
Venice	45,000	10,000	Grand total	4,060,000	144,000

INDUSTRY CENTERED IN NORTHERN ITALY.

Lombardy lies in the extreme north of Italy, with Milan for its capital; Piedmont, with Turin for its capital, occupies the extreme northwest, and Venetia the northeast; Liguria is the maritime section just south of Piedmont, with Genoa for its seat; Emilia is the section lying south of Lombardy, where the Italian peninsula joins the mainland, with Massa for its seat, and Campania is a southern compartment, with Naples for its head. It is seen that cotton mills are centered in the northern section, in the compartments of Lombardy, Piedmont, and Venetia, with a smaller number in Liguria and Emilia, represented by Genoa and Massa in the foregoing table, *and that* what manufacturing exists in the Italian peninsula is

around Naples. Of the provinces the most important are seen to be Milan, Turin, Novara, Bergamo, and Brescia.

The Government and the local authorities of southern Italy are now trying to extend the development of cotton manufacturing in that section, and to this end land has been offered free of cost for mill sites, taxes will be remitted for ten years, and textile machinery for mills so locating will be admitted free of duty. These inducements, added to the fact that labor is much higher in the north than in the south, due to the greater demand for it, will undoubtedly tend to gradually increase the number of mills in that section. The labor, though cheaper, is less efficient, and the mills have to go to greater expense in other directions, and be more self-contained, as they are farther away from the machinery import agents, the machine repair shops, the export firms, the dyeing and finishing establishments, etc., that have developed to such numbers in the mill centers of the north.

The tax lists, as shown, give the number of spindles at 4,060,000 and the looms at 144,000, but mill men say that even these figures are much underestimated, and that the number of spindles now in operation in Italy is over 5,000,000, and the power looms over 150,000. They estimate the number of workmen at 250,000. The consumption of cotton in 1906 was 384,410,660 pounds, which would be equivalent to 768,821 bales of 500 pounds each.

SYSTEM OF MANUFACTURE AND NUMBER OF MILLS.

The cotton manufacturing industry of Italy is modeled after that of England, and the general custom is to have a separate mill for each stage of manufacture. Thus there are comparatively few mills that buy the raw material and then ship the finished cloth to the store without assistance from some other establishment. One mill makes only yarn, another operates only twisters, another does nothing but weave, and others have only the machinery necessary for dyeing, or printing, or mercerizing, or bleaching. For instance, a mill at Turin has a dye plant, twisters, and looms, while a near-by mill, in the country, has nothing but carding and spinning machinery. The country mill runs the cotton through the lappers and cards, and sends the card sliver to the city mill, where it is dyed, then carried back to the country mill and spun, and the yarn returned to the city mill and woven into cloth. In some instances four different mills are used for spinning, dyeing, weaving, and finishing the cloth.

The latest statistical list of the Cotton Industrial Association of Milan—that for 1906—gives the names and location of all cotton manufacturing establishments in Italy. They make no attempt to give the figures for the spindles and looms. Their list shows 530 separate companies, operating plants of all kinds to the number of 656. Included in the 530 companies are two companies operating mills in South America, from headquarters in Milan. The first of these has a spinning and weaving mill at St. Paul, Brazil. The other company has mills at Buenos Aires, Argentina, and at Salto del Ytu, San Roque, and Osasco, Brazil, as well as a mill at Castrezzato in Italy. This last company was founded by a pioneer who inaugurated Italy's export trade with South America, and the

founding of mills in Argentina and Brazil was a natural development of this business. These mills are all run by Italian emigrants to those countries.

DISTRIBUTION AND CLASSIFICATION OF ESTABLISHMENTS.

The 530 companies employed in the various branches of cotton manufacturing are, according to the list, distributed as follows:

Establishments.	Lombardy.	Piedmont.	Liguria.	Venetia.	Campania.	Tuscany.	Emilia.	Rome.	Apulia.	Sicily.	South America.	Total.
Spinning mills	34	8	13	6	3	1	....	....	....	....	....	65
Twisting	8	3	1	1	1	4	....	....	....	....	....	18
Spinning and weaving	39	8	5	2	3	1	....	....	....	....	2	60
Power looms	168	24	11	10	3	6	1	....	1	1	....	255
Hand looms	30	14	1	4	1	26	4	2	....	....	....	82
Power and hand looms	11	4	....	....	1	....	....	....	....	....	....	16
Dyeing, printing, bleaching, and mercerizing	21	....	1	....	1	1	....	....	....	....	....	24
Knit goods	14	7	3	....	....	....	....	....	....	....	....	24
Sewing thread	....	....	....	....	....	2	....	....	....	....	....	2
Others	6	2	2	....	....	1	2	1	....	....	....	14
Total	331	70	37	23	13	42	7	3	1	1	2	530

It is seen that there are only 60 plants that combine both spinning and weaving to 225 that have only looms, 65 that are spinning mills, and 18 that operate only twisters; 24 plants are given as devoted to dyeing, printing, mercerization, and bleaching, one or all. In addition, of course, many of the yarn mills and the weave sheds have their own plants for dyeing, etc., in connection with their establishment. Also a good many of the spinning mills have their own twisters. There are shown 24 mills for making knit goods and 2 sewing-thread mills. In addition to the two thread mills shown, there are two or three of the yarn mills that also make thread as well as yarn. The largest sewing-thread company is in Milan, which was formed by the amalgamation of several companies into one, and this company will in time probably absorb its competitors and have the monopoly of the manufacture of this article in Italy. Of the establishments not separately listed, 3 are for cleaning and manufacturing flyings and other cotton-mill waste, 3 are for making antiseptic gauze, 2 for preparing cotton for use in the Government powder mills, and 2 are for making gauze and lace.

EXTENSIVE USE OF HAND LOOMS.

It will be noticed that in the list there are given 82 establishments as operating hand looms, and 16 as operating both hand and power looms. As labor gets higher the hand-loom industry will necessarily decrease, but at present it is a fairly profitable business in Italy. A large portion of their production consists of strongly made coarse goods for country wear—stripes, checks, etc.—and of cotton and linen cloths, of which there are large quantities made by both hand and power looms in Italy. The great bulk of the hand-woven product is colored goods.

The hand looms also compete in other lines—in Jacquard work, in making cotton trouserings and mixtures, and, to a smaller extent, *in* fancy goods. In some mills the hand and power looms work side

by side. For instance, at a mill I visited at Chieri, near Turin, I found a modern plant of 150 looms running on colored goods, Oxfords, alpacas, trouserings, etc., and in the same establishment 20 wide hand looms, with Jacquard attachments, making Gross de Tours or figured bedspreads, and also 30 narrow hand looms running on the same goods as the power looms. In addition to these, the firm employs some 150 hand-loom weavers who work at home. The products of this mill, both hand and power, are exported, chiefly to Argentina.

There are necessarily no figures available as to the exact number of hand looms in Italy. The Government estimate in 1903 of 4,206 hand looms on gray work and 9,601 on colored work was simply those given in for taxation by the registered companies, and the Government estimate for hand looms worked at home was 60,025, making the total number of hand looms 73,832. The hand looms are scattered more or less throughout Italy, but of the registered companies the majority are in Lombardy, Tuscany, and Piedmont. In Piedmont the hand-loom industry centers around Chieri, a small town some 20 miles from Turin. In Chieri alone there are 14 companies operating hand looms and 3 operating both hand and power looms. In Lombardy the hand-loom industry is located around the big cotton-mill center of Busto Arsizio, and in Tuscany it is grouped in the small towns lying back of Pisa.

COTTON-MILL DEVELOPMENT—LACK OF RAW MATERIALS.

At present Italy has a steadily expanding export trade in cotton goods, and her home demand is advancing still more rapidly, with the increasing prosperity of her people. This makes cotton manufacturing in most lines very profitable. That hand looms still compete I regard as due to the facts that there are not enough cotton mills and that there is such a profit in manufacturing that even the hand looms, aided by the tariff, can compete for a share of it. In mills running both hand and power looms, the hand-loom weaver runs one loom only; the power-loom weaver runs two, and is paid much less per cut than the hand-loom weaver. That this continues shows the great demand there is for cloth, but it can not last longer than the time when the mills can obtain capital and get machinery delivered. Hand looms, therefore, will necessarily decrease, and only be retained for very coarse goods, and for cloths, such as bedspreads, etc., on which the speed is necessarily slow anyway.

The great development of the cotton manufacturing business in Italy is all the more remarkable as the country supplies practically nothing but the labor. Italy has neither iron, coal, nor cotton. All of the iron for the mill buildings, nearly all of the machinery for the manufacture, all of the coal to drive the machinery, and all of the cotton to run through the machinery have to be brought thousands of miles, yet the mills are steadily increasing in number. Some machinery is now manufactured in Italy, but this amounts to a very small percentage of the requirements, and even in this case the iron is imported.

The great increase of cotton mills since 1902, since which time they have more than doubled, is due to various causes, among which may be noted that about that time the Italian Government declared its paper money on a par with and redeemable in gold—thus indicating

that its finances were on solid ground, which gave great impetus to all Italian industries—and the increasing foreign and home demand noted.

NEW LAW AFFECTING WOMEN AND CHILDREN IN MILLS.

In 1902 a law was passed, to take effect in 1907, prohibiting the night work of women and children in mills. The women and children form two-thirds to three-fourths of the operatives in Italian cotton mills. This law practically meant that the mills had to be doubled, and five years were accordingly allowed for the purpose. The purchase of the great quantity of new machinery required for this object, and to meet the ever-increasing demand, meant that the cotton mills had to raise large amounts of money, and this was somewhat difficult, even in the space of five years, so that when the new law finally became effective, in June, 1907, it still found some of the mills unprepared. The mills were very prosperous in 1905 and 1906, which induced many new competitors to enter the field and, in some cases, the stock of these companies was quoted at high figures, even before the foundations for the walls had been laid. The prosperity has in great measure continued, but so much money has now been tied up in the new enterprises that it has made money tight in Italy, and it will be some little while before the returns can come in. This has temporarily checked building, added to the fact that England is quoting eighteen to twenty-four months on delivery of machinery.

MILL MACHINERY—IMPORTS AND DOMESTIC PRODUCTION.

During 1905 and 1906, Italy imported cotton-mill machinery to the value of $14,781,263. Speaking generally, the carding and spinning machinery used comes from England, the weaving machinery from Switzerland, and the dyeing and finishing machinery from Germany, while some, mainly napping machines, comes from France. England also sells a large amount of weaving machinery, but the majority of the Italian mills seem to prefer the looms from Zurich, especially for box work. The great bulk of the textile machinery is imported, but recently Italian machinery manufacturers, who already make large quantities of water and steam turbines, steam engines and boilers, gas engines, dynamos, and electrical material, have branched out into the manufacture of cotton-mill machinery, mainly on warpers, reels, and plain box and Jacquard looms. These do not, as yet, manufacture looms in very large quantities, but the manufacture must be profitable, as a good many new companies are being formed for this purpose.

The spinning frames used are, of course, all on the English style, with one leather-covered front roller, and uncovered, self-weighted middle and back rollers. Heretofore the majority of the mills have preferred mule spinning, but the new mills are installing mostly ring spinning. Three-fourths of the looms are of the overpick style.

MOTIVE POWER USED AND CAPITAL INVESTED.

In regard to the motive power, there are no very recent figures, but in 1903 the Government statistics show that of the 86,692 horsepower in that year, 43,834 was classed as steam, 35,705 as hydraulic, 6,623 as electric, and 920 as gas and oil. There has been a great *increase* in all four lines since, but especially in the use of electricity. *The new mills in Italy are* distinguished especially for the up-to-date

use of armored cement in construction and of electricity in operation. There has been a great increase in the use of hydraulic power among the mills situated so as to avail themselves thereof, especially those of Piedmont, where water power is very plentiful. Cardiff coal at present (November, 1907) costs at Turin 37 lire per 1,000 kilos ($7.14 per metric ton), and as all coal has to be imported the mills using water power effect quite a saving. Gas and oil engines, which are a more recent arrival in the field, have been limited to small powers, but it is understood that some of the new mills are to be equipped with large units.

The Government gives the capital stock of the mills as being about 500,000,000 lire ($96,500,000); the yearly wages paid as being about 100,000,000 lire ($19,300,000). They state that about 23 per cent of the production is exported.

MILAN THE CENTER OF THE COTTON INDUSTRY.

The cotton manufacturing industry of Italy is centered at Milan, which is the industrial capital of Italy. From being one of the interior cities, dependent on Genoa for its commercial life, its trade has become so large that Genoa no longer suffices as an entry way for its imports and exports, and Venice is also being developed for this purpose so that it may have two good outlets to the sea. The one railway line from Genoa has to go through tunnels to get out of Liguria and is so congested that it takes longer for goods shipped from the United States to come from Genoa to Milan than from New York to Genoa. There is now being projected a system of waterways whereby freight can go from Milan to Venice by boat, which will aid greatly in relieving the present congestion. Last winter some mills had to shut down or run short time on account of coal being delayed by the congestion of the railroads out of Genoa.

Milan is now one of the most important industrial cities of Europe, and its importance is rapidly increasing as the export center for southern Europe. It is the headquarters of many cotton manufacturing firms that have their mills elsewhere, is the headquarters for the commission firms and export houses, for the machinery agents, for the machine shops, and other agencies and industries connected with cotton manufacturing. The banks of Milan largely finance the industry, and the associations of both the employees and the employers are located here. The latter, the Associazione fra gli Industriali Cotonieri e Borsa Cotoni, publishes a monthly paper called the Bolletino, which gives news in regard to the Italian industry, strikes, changes in tariff, etc., and information in regard to the opportunities for cotton manufactures in foreign countries, paying special attention to all items from Argentina and Turkey. This association includes all the larger cotton manufacturers and acts as a general information bureau for the trade.

Milan, though the center of the cotton-manufacturing business of the country, is not the largest mill town, and the bulk of the mills of Milan Province lie in the small towns north of Milan itself. The cotton-mill towns seem to be Busto-Arsizio, Monza, Gallarate, Milan, Turin, Legnano, Bergamo, Salerno, and Novara. The cotton mills do not think it to their interest to publish any details of their size or equipment, so the number of spindles and looms at each point can not be stated, but undoubtedly Busto-Arsizio and Monza contain the largest number of mills. There are 42 cotton mills at Busto-Arsizio

(not counting hand-loom establishments), but of these only 3 spin. At Monza there are 25 weave mills and 3 spinning mills. The spinning mills are mostly in the country.

ITALIAN DEMAND FOR FOREIGN COTTON GOODS.

It is to be noted that the Italian people themselves do not know how far their cotton industry has advanced, and still demand foreign, especially English, goods. To meet this demand many Italian manufacturers put on foreign labels to suit. Monza, for instance, exports 6,000,000 felt hats a year, and supplies both felt and fine hats for the home trade, yet the buyer likes the English label. It is stated that some of the hats are really sent to England, marked, and returned. It is the same with other articles. "English derbies" come from Monza or Cremona, "English flannels," bought in the Milan stores, come from Busto-Arsizio, "latest foreign novelties" from Alessandria, "French shoes" from Naples, "French gloves" from Milan, "champagne" from Asta, etc. The Italian manufacturers, therefore, study their home market as they do the foreign markets, and sell "English goods" to the Italian people, while they are selling "American Cabots" to the Turks, but all are made in Italy. Recently there has been quite a little written on this subject, and the Italians will probably in time buy their own goods under their native name.

The largest division of the goods made in Italy is comprised under the head of colored goods; gray goods come next, then printed goods, and then bleached goods. Among the main goods manufactured are napped goods, cotton flannel, flannelets, barchent, Oxfords, zephyrs, cotton trouserings, fustians, domestics, serges, Florides, Carolines, Mogador, sateens, shirting prints, Cabots (sheetings), shirting mixtures, men's suitings in imitation of wool, merinoes, linings, buckram, cotton and linen cloths, piqués, diagonals, bordered goods, lenos, table linen, reps, cretonne, Vichy (gingham), mercerized goods, Jacquards, Gros de Tours (bedspreads), towels, and handkerchiefs.

CATERING TO FOREIGN MARKETS.

The fact that the Italian mills cater to the demands of the buyer is one reason why they have been able to increase their business so rapidly both at home and abroad. In nearly all lines of cotton manufacture they entirely supply their home market, and no foreign goods can be imported in large quantities but the mills immediately start on its manufacture. Their foreign market has been built up by careful study and experiment. The export firms employ many travelers, and these keep the mills exactly informed as to the wishes of the buyers, and these wishes are deferred to, whether in regard to width and length of goods, marking, packing, or credit. Accustomed to long credit at home, these firms are equally ready to extend it abroad, and this fact has had a great deal to do with their supplanting other countries. They do not try to ship surplus goods to foreign markets, but make directly the goods that are required. and will take very small initial orders to start with. Their best markets are Argentina, Turkey, Egypt, India, and the Balkans. They also ship goods to other countries, including not only the Philippines, but some to the United States.

Among the goods exported may be mentioned especially flannelets, *barchent*, Oxfords, zephyrs, mixtures, trouserings, Cabots, shirtings, *sateens, Gros de Tours, towels, and* handkerchiefs.

The bulk of the cotton mills sell to the Italian stores through some intermediary agency, but a great many sell direct. Nearly every mill has its own designer, sometimes one to every 100 looms, and gets out books of new patterns every season—that is, twice a year—so that its customers can select in the spring for the fall goods and in the fall for the spring goods. Therefore when the Italian mills go after the foreign trade they never object to furnishing sample books, for that has been their regular custom at home.

AGREEMENT GOVERNING HOME SALES.

The terms of sale of different houses in the foreign business vary, and they have not yet come to any agreement among themselves on the subject. For the home trade, however, the terms of sale have become more definitely fixed, and the majority abide by the selling agreement rules of the Italian Cotton Association. This is only obligatory on the members of the association, but has become the regular custom for nearly all. This selling agreement, approved by the council of directors, January 15, 1907, is as follows:

ARTICLE 1. For cotton textiles in the gray, unless otherwise specifically stated, it is tacitly understood that the yarns must be stated according to the English numbering, and that the quantity of threads be given per centimeter or per quarter inch. By quarter inch in this case is meant a quarter inch French, unless otherwise specifically stated.

ART. 2. In the shipment of gray goods there will be made the following allowances: (*a*) Three per cent, more or less, upon the established quantity of the shipment, when it does not run above 2,000 pieces; 2 per cent upon shipments running up to 5,000 pieces; and 1 per cent on shipments of more than 5,000; (*b*) 4 per cent upon pieces of irregular width; (*c*) if in the contract of sale the length of the pieces is indicated with a single number, the advantage of regular width is to be accorded to pieces which do not vary more than 3 per cent from the indicated number. If the length is indicated in two numbers, the allowance will be calculated on the average length; (*d*) 1 per cent on the width of the goods; (*e*) upon the average weight of every shipment an allowance of 2 per cent based on the theoretical weight of the goods and of 5 per cent upon the single pieces. When this allowance is exceeded, but when the difference in weight does not exceed by at most 1 per cent the average of the shipment, corrections may be made corresponding to the difference in weight between the allowance and the actual. Greater differences being established, other goods must be substituted. Allowances are made on single shipments and on fifteen days time.

FILING OF CLAIMS AND EXCEPTIONS ALLOWED.

ART. 3. Claims based on the quality of the goods and upon the weight must be made within fifteen days from the receipt of the shipment, excepting cases where there exist hidden defects not apparent within that time. When such hidden defects appear they must be made the subject of claims under the general commercial laws within two days from the date of discovery.

ART. 4. In the case of total or partial failure of deliveries within the time established by the contract of sale, the purchaser has the right to annul that part of the contract relating to the part of the shipment remaining undelivered, and to claim damages, determined by arbitration, always providing that the purchaser gives notice to the seller of such action in a registered letter or telegram, such notice being of not less than fifteen days.

ART. 5. There are allowed four exceptions to the right of claim stated in the preceding article, thus: Floods, extraordinary droughts in canals or rivers, disablement of principal machinery or transmission gearing, strikes up to forty-five days, and an additional exception is suspension of the railway service. All these causes must be proved by acceptable documents. These are considered cases of "superior force" both for the seller and for the purchaser, and can not be claimed as ground for the cancellation of the contract, but only as suspending delivery.

ART. 6. If the factories or stores of either the seller or the purchaser are destroyed by fire or by whatever other catastrophe of superior natural force, and are rendered incapable of effecting or receiving delivery or a partial execution of the contract of sale, and such period of incapability continues for more than three months, the contract may be canceled. The contracting party who requests the cancellation of the

whole or a part of the contract of sale, and by such cancellation retains in his hands a part of any moneys paid thereon, must indemnify the other party, and in such cases the parties may resort to the judgment of arbitrators to fix the measure of indemnity.

CONDITIONS OF SALE, FORWARDING, AND PAYMENT.

ART. 7. When the contract states nothing to the contrary, it is understood that both parties will tacitly accept the following agreements: (*a*) Goods to be marketable; (*b*) discount at 2 per cent; (*c*) payment at thirty days; (*d*) interest at 6 per cent; (*e*) shipment to the designated port, at the risk of the buyer; (*f*) shipment as a whole to go forward as nearly as possible in sections equal to the number of months between the execution of the contract and the date named as the termination thereof. If the termination of the contract is not fixed, it will be understood for the purpose of timing the shipments thereunder that it is to run for six months; (*g*) arrangements to be made not less than ten weeks prior to the going into effect of the contract; (*h*) the compromise clause, as formulated in the standard contract in use by the members of the Cotton Association, and the application of similar special regulations of the association, will be understood.

ART. 8. If the buyer does not dispose of the goods within the terms of the contract, the seller, previously giving fifteen days notice by wire or by registered letter, has the right to annul that part of the contract not carried out, and to reimburse himself with the differences in price existing at the termination of the contract, or to sell in the market one or more of the qualities of textiles named in the contract.

ART. 9. In regard to the monthly shipments, it is understood that they shall take place on the day most convenient to the seller. For shipments divided within a given month it is understood that they shall go forward as nearly as possible in consignments equal to one for each week of the month.

ART. 10. The contracting parties, for purposes of the contract, will consider the residence of the seller as their legal domicile, in the absence of special provisions to the contrary.

ART. 11. Payment must be made at the domicile of the seller in legal tender.

ART. 12. The seller may suspend shipment, under any and every contract, in consideration of a tardy buyer, unless the contract contains special provisions to the contrary. And without such special provisions the tardy buyer will have no rights for claiming an indemnification of damages.

These rules are good also for domestics sold in standard makes, but for these sales there are excluded articles 1 and 2 *e*, and the allowance named in article 2 *a*, because it is usual to ship these in the precise quantity contracted for.

COTTON MILLS.

DETAILS OF OPERATING METHODS.

PRODUCTS OF A SUCCESSFUL MILL NEAR NAPLES—EQUIPMENT ONE OF THE BEST IN ITALY.

Spinning mills and weaving mills in Italy are generally erected separate. For spinning mills the figures as given me by various manufacturers vary from 60 to 75 lire ($11.50 to $14.50) per spindle. For a weave shed the cost per loom was given as about 800 lire, which is $154, but this depends so much on the number of looms and what amount of preparatory machines, such as slashers, cop winders, etc., and what finishing machinery, such as starching machines, brushers, shearers, etc., are included that this is not very definite. For weaving alone the total cost of shed is figured at 600 lire or $116 a loom.

The most successful cotton manufacturing company, as well as one of the oldest in southern Italy, is located at Salerno, near Naples. The two mills owned by this company run on rather finer goods than the majority of Italian mills and their goods have a wide reputation. They make mostly for the home trade. This company has 40,000 spindles, 450 looms, and 12 printing machines. The output is mostly fine goods, using 30s to 50s yarn, especially white shirting, fine striped shirting, gingham, dobby goods specialties, and flannelets.

American cotton only is used for the fine goods, some Indian cotton is mixed in for the flannelets, and Egyptian cotton is sometimes used for stripe effects on the specialties. Most of the machinery is from England, but the majority of the looms were from Switzerland, and the manager stated that he preferred these to any English make, being made stronger and the box motion being better.

This mill is one of the best equipped in Italy and relies on itself for everything; in fact, has to do so, as it is situated away from the machinery centers. The engine used in the dyehouse was designed cast, finished, and put together at the mill. A large foundry and machine shop is also attached. The mill bleaches, dyes, and prints. A different bleach is of course used for cloths to be printed and those to be sold as white goods, the former having to be more thorough.

The engines and boilers are Swiss, and all coal is brought from England, the mill buying large quantities at a time and at present paying 35 francs ($6.75) a ton. The mill is lighted by gas, with open gas jets above each loom, and it is curious to note that, as stated by the manager, the insurance companies give them a lower rate on gas than they would on electric lights. The gas plant is owned by the mill. There is also a small dynamo, but it is only used to charge accumulators so as to light the houses of the proprietor and the overseers at night. The mill does not work at night.

CALICO DESIGNING AND PRINTING.

This mill makes its own copper rollers for printing, makes its own designs and patterns, engraves the rollers, and then does the printing. In making the printing patterns on the copper rollers from designs three methods are used. The first method is to put the copper roller, which is some 6 inches in diameter by 36 inches long, into a lathe and turn the pattern on it by means of a tracing point guided by an iron design, but such designs are limited in their scope and too regular in their pattern. Another method is to engrave one repeat of the pattern, or a section of a repeat, on a small "mill" made of harder material than the roller, and then to set this in the lathe and press the pattern into the copper roller therewith. The slowest but finest method is to engrave the large rollers by hand, and sometimes six months are taken by a skilled workman to finish one design in this way. One roller is used for each color, so a six-color pattern will require six rollers. Some of the sketches made up by the designers are very artistic. The engravers are also highly skilled men. The rollers for putting a glazed-line finish on the cloth, also made here, have lines running slantwise around the rollers, but so fine they can not be seen with the naked eye.

After printing the colors are fixed by the "cottage system" of steaming. The cottage steamer consists of a large cylindrical iron chamber, 10 feet in diameter, similar to a boiler in shape. The front of the steamer is provided with a strong iron door, which is raised to allow the carriages containing the pieces to be rolled in and out on rails. The door is fastened by strong screws, so that after the carriage is rolled in and the door shut the chamber is steam tight. Pressure used is about 30 pounds. There has also been installed a new continuous steaming machine. This mill also has quite a variety of old and new machinery for soaping and fixing, bleaching, etc. It does not do its own mercerizing, but sends the yarn to Milan, where it is mercerized and returned.

WIDE-AWAKE BUSINESS METHODS—OPERATIVES AND WAGES.

One of the main lines made by this mill is napped goods, especially printed flannelets and barchent, the first being napped on both sides, and the latter hard finished on the outside and napped on the underside. Patterns for these goods are sent out in the spring and made up in the summer for fall delivery, while patterns for light goods are sent out in the fall and made up in the winter for spring delivery. The designers of this mill are steadily at work all the time getting out new patterns and designs. This company has its own printing establishment, prints and binds its own pattern books, and has a staff of men to cut out and insert the samples, and sends carefully packed small wooden boxes containing different sample books to all its principal customers.

This company employs some 2,000 operatives, and the wages of the bulk of the employees average about 1½ francs, say 30 cents, a day of eleven hours. At the gate office the company has a large board with hooks, from which are suspended numbered brass tags. Each workman is known by number, and as he comes in he takes his tag with him and replaces it when he leaves, so at any time the clerk can tell at a glance what numbers are absent. This mill has

no tenement houses, and most of the employees are natives of the district, owning their own houses or else boarding in crowded flats in the neighboring town.

EQUIPMENT AND OUTPUT OF A MILL IN MILAN PROVINCE.

A mill that was built last year in a small town in Milan Province paid the following for the main textile machinery used, the prices being f. o. b. ship at Manchester:

Machinery.	Cost.	Machinery.	Cost.
1 pneumatic opener	$1,475	5 intermediates, 144 spindles	$5,596
2 scutchers	667	12 fine frames, 180 spindles	11,972
30 cards	16,497	4 self-actings (mules), 1,000 spindles, 1¾ inches	6,229
9 draw frames, 10 deliveries each	4,380	20 ring frames, 400 spindles, 2⅛ inches	18,687
3 slubbers, 96 spindles	2,803		

The scutchers and cards were for laps 40 inches wide. The cards had 102 flats, 1½ inches center to center, with 50-inch cylinder and 24-inch doffer. The draw frames were made double—that is, five heads facing one way and five the other. The slubbers had ¾-inch spindles, 4 in 20½ inches, and the bobbins were 10 inches by 6 inches. The intermediate had 8 spindles in 25¼ inches and bobbins were 10 by 4½ inches. The fine frames had 8 spindles in 20½ inches and bobbins were 7 by 3½ inches. The mules were of 1,000 spindles each, 1¾ inches center to center. The ring frames were of 400 spindles each, spaced 2⅛ inches center to center, with 1⅛-inch rings and 5-inch traverse. The numbers made by this mill are mostly 20s to 30s, and the production was some 6,000 pounds of yarn per 10½-hour day using some 14 bales of American cotton per day.

WEEKLY WAGES OF EMPLOYEES.

The regular weekly wages in American currency, based on the rate per day, except as stated, were about as follows:

Employees.	Per week.	Employees.	Per week.
General personnel:		Card room—Continued.	
1 manager, here called director, at 15,000 lire a year	$57.90	2 slubber tenders, at 2 lire each	$4.63
1 bookkeeper at 5,000 lire a year	19.30	4 intermediate tenders, at 2 lire each	9.26
1 clerk at 5 lire, and 3 clerks at 3.5 lire each	17.85	9 fine-frame hands, at 2.25 lire each	23.45
1 gatekeeper at 2 lire	2.32	2 roving carriers, at 2 lire each	4.64
1 night watchman at 2.5 lire a night (7 nights)	3.38	Total, card room	85.40
1 Sunday watchman at 2 lire	2.32	Spinning room:	
2 boiler-room men, at 3.5 lire each	8.11	1 foreman at 6 lire	6.95
1 engineer at 5 lire	5.82	1 assistant in charge of mules at 5 lire	5.79
1 machinist at 6 lire, and 2 assistants at 4 lire each	16.21	2 mule spinners, at 5 lire each	11.58
1 waste packer at 2.5 lire	2.90	4 mule threaders, at 3 lire each	13.90
1 roll coverer at 4 lire	4.63	2 carriers and oilers, at 3 lire each	6.95
1 general utility man at 2.5 lire	2.90	1 rope binder at 3 lire	3.47
Total, general personnel	143.64	2 assistants on ring spinning, at 4 lire each	9.26
Card room:		20 female spinners, at 2 2 lire each	50.95
1 foreman at 6 lire	6.95	16 doffers, at 1.25 lire each	23.16
1 assistant at 3 lire	3.47	4 apprentices, at 1 lire each	4.63
Picker-room force, 3 men, at 2.5 lire each	11.58	2 banders and oilers, at 2.5 lire each	5.79
1 card grinder at 5 lire	5.79	1 baler at 2.25 lire	2.61
3 carders, at 2.5 lire each	8.68	Total, spinning room	145.04
3 draw-frame tenders, at 2 lire each	6.95	Total wages, entire mill	$374.08

A TYPICAL MODERN MILL.

The largest number of mills collected at any one point in Italy is at Busto-Arsizio, in Lombardy, a village some 28 miles north of Milan that consists of nothing but cotton mills and dwellings for operatives. It has 42 mills, only 3 of which are yarn mills, as the latter are mostly situated in the country, where labor is cheap, and especially where water power can be obtained, while the weave sheds mostly gather in groups, so as to avail themselves of the common dyeing, bleaching, and finishing establishments.

The new Italian cotton mills are especially distinguished by their use of armored concrete in construction and of electricity in operation. The newest mills are equipped with every modern improvement, and, as the majority of the Italian mills are comparatively new, this gives them an advantage over some other countries where the industry has been longer established.

One of the finest of the new mills I examined had just been completed. It has 15,000 spindles and 500 looms, and is to increase its spinning capacity as soon as it can get machinery delivered. It uses 11 bales of American cotton a day, and runs on 20s to 28s, with a smaller amount of coarser yarns.

The mill compound is walled in, with the office at the gate. The spinning occupies one building and the weaving another. The building for the spinning mill is three stories high, with flat tar and gravel roof. The main feature of the building is the use of concrete. Inside and out one sees cement only. The brickwork and all ironwork are concealed by cement, and there is no woodwork. The window frames and sashes consist of flat strip iron with narrow 5 by 20 inch panes of glass. Except for the windows, no ironwork is seen anywhere. The ceiling inside shows a flat cemented finish broken up into panels by the 8-inch-square cement beams supported by cement-covered columns. The mill is absolutely fireproof and no sprinklers are used, but there is a water system consisting simply of pipes running up the wall at the corners with lines of fire hose attached.

DIRECT MOTOR-DRIVEN MACHINERY—ARRANGEMENT OF MILL.

Next to the use of cement, the feature that strikes one in the spinning room is the absence of overhead work. Usually a cotton mill has overhead a network of shafting, belting, sprinklers and connections, heating pipes, etc., but here there was no obstruction whatever, except a few straight lines of heating pipes, and the absence of overhead work makes a very neat looking room. The establishment is operated entirely by electricity, a dynamo of 500-kilowatt power being used, of which the spinning mill absorbs 160 and the remainder is used for the weave shed, lighting arrangements, for machine shop, pumping, etc. A direct connected motor on an elevated platform drives the main overhead shaft for the card room, but for the spinning room each of the 400 spindle frames has a separate direct connected motor. The frames are set crosswise of the mill. The columns are spaced 5 meters (meter=3.28 feet) between bays, and there are seven bays, so that the mill is about 115 feet wide, which gives

room to set two frames with their motors at the end and have plenty of passageway. Lengthwise of the mill the columns are spaced 7 meters from center to center. The frames run remarkably steady, and it is claimed that a much greater production can be obtained than with belts, which I think has been the experience in the United States.

On the first floor of this mill are the scutchers and the card-room machinery. On the second floor is situated the ring spinning, and on the third floor are the mules, with space for others to be installed later. As usual, one end of the mill is divided by a wall, and at this end, on the third floor, are stored bales of cotton. On the second floor there are bins, where 100 bales of cotton are kept opened up all the time and where the oldest mixing is laid on the long lattice of an opener and then carried down through a dust flue to the breaker on the first floor. It goes through two scutchers, and the laps are carried thence into the card room. There are 30 cards with 37½-inch flats. Like all the other carding and spinning machinery in this mill these are from England.

SPINNING AND WEAVING PROCESSES.

There are used three processes of drawing, with leather-covered rolls and mechanical stop motion. The roving processes consist of three 96-spindle slubbers, four 144-spindle intermediates, and nine fine frames of 180 spindles each. For roving to be used for 12s yarn the numbers are 0.5, 1, and 2.5 hank, respectively, for slubber, intermediate, and fine frame, and for roving to be used for 28s the corresponding hank numbers are 0.8, 2, and 5, respectively.

The direct-connected electric drive enables the frames to be run at a good speed, and the spinner gave the speed of front roll of the ring frames on 20s as 155 revolutions per minute and of the mules on 12s and 16s as 170 revolutions. The ring frames were of 400 spindles each and the mules of 1,000 spindles each.

The weave shed is a one-story building, with yarn storage room and warp-preparing machinery at one end. The weave shed, like the spinning mill, is of cement construction throughout, with cement floor. The roof is the usual saw-tooth style used throughout Italy. The looms are of different makes, but mostly English. They are both narrow and wide intermingled, so that a weaver would not have all the same. There are a few dobbies, but most were plain and box looms, all being overpick style. Some have the English revolving shuttle box, but most use the ordinary up-and-down style. The products are mostly cheviots, chambrays, trousering, and plain wides, gray, and bleached. Both bleaching and dyeing are done by an outside establishment.

WAGES OF SPINNERS AND WEAVERS.

In the card room wages are as follows: Picker-room hands get 2 to 3 lire a day (lira = 19.3 cents), carders get 2½ lire, and 3 carders and 1 card grinder run the 30 cards. Draw-frame tenders get 2 lire a day. Slubber tenders get 10 centessimi (about 2 cents) a hank, and the intermediate and fine frame tenders in proportion, so that their wages

per day vary between 2 and 2.5 lire. On the spinning frames girls run from one to two sides, and are paid by the production, but wages average about 1 lire per 200 spindle side. For the 15,000 spindles there are 12 doffers, each under an assistant, the doffers getting 1.25 lire per day.

Prices for weaving vary, so that figures without samples are of little value, but on the plain wides of 140-centimeters (55.12 inches) width the weavers get 5½ centessimi (1.06 cents) a meter (39.37 inches), and cuts run 50, 100, and 120 meters in length. On the narrow goods up to 75 centimeters (29.53 inches) the price averages about 3½ centessimi (0.68 cent) a meter. The wide looms are run 135 to 150 picks per minute, and the narrow looms 180 picks a minute. These prices correspond to about 1 cent a yard for 68-pick goods 55 inches wide, and about 0.6 of a cent a yard for 48-pick goods 30 inches wide. The weavers, therefore, make 2 to 2½ lire a day, a few getting as high as 3 lire.

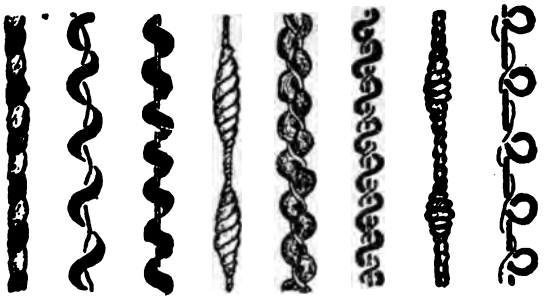
A TURIN FANCY WEAVING MILL.

Another fancy weave mill at Turin has 320 looms, and is one of the most complete and up-to-date mills in Italy. The mill buildings themselves are not new, but most of the looms are of recent design, and use, as do practically all the Italian mills, the system of harness and card operation that was invented by an Italian and, after being declined by an American textile machinery company, was bought by a Swiss firm at Zurich. This mill dyes, mercerizes, bleaches, twists, weaves, and finishes.

Part of the operations incident to cotton manufacturing are carried on in an outside mill, located in the country near Turin, as this mill does not card or spin. It is interesting to note that this mill dyes the sliver, however. The country mill dumps each can of card sliver, as made, into a burlap sack of the same size as the card can and sews this up. This is sent to the Turin mill and the roving, sack and all, is immersed in the wooden dye vats. These vats are made of 2-inch plank, and are some 3 feet square by 8 feet long. The sack and its contents are then put, with some hundreds of others, in a big drying chamber and left for three to five days to dry. They are then carried back to the country mill, opened up for the first time, and the roving run, as usual, through the drawing and other processes. By varying the colored ends on the draw frames an infinite variety of colors can be produced, especially colors in imitation of wool. This mill makes a specialty of cotton cloths in imitation of wool. Recently, to save the long time required to dry the dyed roving in sacks, the manager of this mill has had built a peculiar drying machine, and the slivers are run through and coiled in the sack again at the other end. The movement is slow, but, as a great number of ends are run through at once, it is a great deal faster than the old method.

Roving is also bought from the country mill in numbers down to halves on the speeder bobbins. These bobbins of roving are placed in the twister and run through with a strand of fine yarn, say 20s, to give requisite strength for weaving. Sometimes only the fine thread is sized, and the soft coarse yarn thus prepared is used to make wool-barred effects on the loom. Various other kinds of fancy and irregular yarns are used to produce certain effects on the cloth, mostly in the

way of stripes and cross-barred effects. The following shows some of the fancy yarns used for this purpose:



Classes of yarns used in Turin fancy weaving mill.

PREPARATION OF THE YARN.

The regular yarn used is all bought in the skein. Part of it is bleached in the usual way by steaming in a closed kettle, passing through a hydrochloric acid bath and then drying in a hydro-extractor. Yarns to be dyed are steamed in a closed cylindrical kettle and then dyed by hand in the wooden vats. Dyers are paid 3 lire a day. Yarns to be mercerized are put on stretching rollers on the ends of the spokes of a German revolving mercerizing machine. The yarn is kept tightly stretched, and is revolved through a succession of caustic soda baths and cleansing baths of water. After bleaching, mercerizing, or dyeing, as the case may be, the skeins are carried into the dry room, where they are hung in rows on the arms of a big jenny revolving around a vertical center and exposed to a hot blast for three or four hours. This is for yarn to be used for filling.

The warp skeins are sized in a skein sizing machine, in which the skeins are simply placed on two revolving rollers, which carry the skeins round and round through the sizing and squeeze rollers take off the superfluous size. These skeins are placed on the arms of a big swift revolving horizontally in a closed drying chamber and exposed for several hours to a hot blast until dry. All of the warp used at this mill is thus sized in the original skeins without unwinding and the results seem very uniform and satisfactory. The warp skeins then go to the spoolers, where each skein is placed on a separate swift resting on open bearing under the machine, and the yarn goes up and is wound on spools that revolve horizontally on skewers resting on open supports. The skewers are revolved by friction with a larger smooth pulley underneath, and for this purpose the end of the skewer in contact with the pulley is made of about 1-inch diameter and some ¾-inch face. Any spool is stopped by lifting the skewer from contact with the wheel, and there is a separate wheel for each skewer to rest upon. In the case of filling the skeins are placed around swifts underneath the machine, as before, and the yarn goes up and is wound on inverted paper cops. The paper tube is fitted on a revolving spindle, and around each are three small, loosely revolving cones, which give the required shape to the cop. Where it is desired to wind from spools to cops the spool is placed on a skewer and substituted for the skein swift in the supports underneath.

On the twisters, where the yarn is doubled, the two ends are always run around the top roller and brought back around a glass pin and then under the top roller again and down to the twister bobbin. Usually to equalize the tension only one end goes back to the glass pin and the other goes straight down and joins it as it goes under the roll the second time.

YARN PRINTING AND BEAM WARPING.

Yarn printing is performed on a small machine, where the skein is stretched evenly over three fluted rollers, one of the rollers being loosely laid in the framework of the machine and series of slots allowing it to be placed in varying positions, according to the different length of the hanks. The printing roller is inside the hanks of yarn and is furnished with an ordinary color box and furnisher, while on the outside of the yarn is a pressure roller, and between these two rollers the yarn passes and is printed. The printing roller, with its furnishing roller, etc., is carried on a swinging framework, to enable the yarn to be readily put in and taken out of the machine. The printing rollers are engraved, with the lines of the engraving running spirally around it to avoid the jumping that might be produced if the ridges were straight. This printed yarn is some of it used as printed and some run through on the twister with one or more ends of some other color on the twister to give various combinations.

The yarn being already sized as it comes to the beam warper, it is necessary for many ends to be run on the warp beam, as this beam in this case goes straight to the loom. It would not be convenient, even if possible, to run 3,500 ends on a beam at once from a creel, so the beam is built up in sections, on the German or English style. The English style is to run each creel of 500 spools on to a narrow warp beam, about 6 inches between heads, and then these narrow beams are slid on a shaft together to make up the required number of ends, but the heads have to be removed from each, and this is troublesome. The German style is preferable, as being better and giving less trouble. The creel is made up of possibly 500 ends, and these run on a regular length loom beam with one movable end. The beam is so arranged that it can be slid any desired distance in its supports. Thus 500 spools are wound off on to this beam in a distance of 6 inches. The head is slid 6 inches farther to the right and the beam 6 inches farther to the left, the creel refilled and another 500 spools wound off, as before. This is continued until all seven cheeses have been wound on side by side, when the movable head is firmly fastened and the beam goes to the drawing-in hands. For drawing-in two girls work together, and they are jointly paid 20 centessimi (3.86 cents) per 1,000 ends for four-harness work, and other harness work in proportion.

LOOMS AND WEAVING PRICES.

This mill uses the Honegger loom as made at Zurich, and prefers it to the English looms. This system is really a kind of dobby, with a pattern card, and allows of quite a variety of patterns. About half the looms have the Jacquard attachment, and the mill designs its own patterns, which are mostly variations of woolen cloth patterns, as the goods produced are mainly imitations of woolen goods. Practically all the looms were making split goods—that is, the goods were

woven 125 centimeters wide, with a split mark down the center, and afterwards split into two 62-centimeter widths in the cloth room.

These wide looms were run 140 picks per minute, and weavers were paid by the cut of 35 or 40 meters. Weaving prices vary for each variety of these fancy goods, but they are arranged so that a good weaver will make about 3 lire a 10½-hour day running two looms. Thus, on the average 36-inch pick goods, 125 centimeters (49 inches) wide, the price per 40-meter cut is 1.5 lire, or about 29 cents. This makes the weaving cost of the finished goods, 24–25 inches wide, about 14½ cents per 40-meter cut, or about one-third of a cent a yard. The mill bases this on 70 per cent production, and anything over the required amount is paid for in proportion. The cloth is finished and burnished with silk effect or else napped.

This mill for 320 looms uses three designers, and they make up and send out to their customers about 150 new patterns every season. Artificial silk is used for ornamental effects in some of the designs, some of which have been sold in New York.

COMBINED HAND AND POWER LOOM ESTABLISHMENT.

There are sixteen or more cotton mills in Italy that operate both hand and power looms. Several of these are located at the little village of Chieri, near Turin, and this place is the center of the hand weaving in Piedmont.

One of these mills at Chieri operates 150 power looms of Swiss make and in the same establishment 20 wide and 30 narrow hand looms, and also employs some 150 hand-loom weavers that work at home. This mill makes mostly Oxfords, trouserings, striped drills, cotton, and linen goods, and also bedspreads, colored goods in general, and fancy-woven vestings. There is no spinning, and the yarn is all bought in the hank. The filling is wound off on cops ready for weaving. The warp is wound from the skein on spools and these spools placed in a creel and mill warped.

The warping mill consists of a large reel of about 15 yards circumference, which is made to revolve. This reel is fixed upright in a framework, and the ends from the spools, after passing through the eyes of the heck, are wound around the reel. This heck is so constructed that one half of the ends can be raised above the other half and a lease taken when desired. The heck slides up and down the framework of the mill and thus forms a traverse and distributes the warp as the reel revolves. As the reel revolves the heck slowly rises, and so causes the warp to be wound on the reel without overlapping. The heck is moved up and down a sufficient number of times to give the required number of ends in the warp when the warp is cut off and unwound, being made up by hand in a warp chain. The creel of these old-fashioned warp mills are turned by hand wheels, but small motors had been attached to two of them and the others were to be so fixed later. After dyeing and sizing the warp goes to the loom.

Some of the warp is bought by this mill already sized in the skein. In this case the skeins are wound off on spools and these placed in the creel of a sectional warper. The machine winds the ends into what are in England called "cheeses," from the similarity of the section to a whole cheese. They are really transverse sections of an ordinary weaver's beam. The cheeses are then put on a beam, and

the whole is rewound on the weaver's beam by means of a "winding-off" machine. The girls that work on the cop winders get 1.25 lire a day, and the warper girls get about 1.5 lire a day.

EQUIPMENT, WAGES, AND OTHER DETAILS.

The power looms are in a new building with steel saw-tooth roof, cemented walls, and wood floor. The floor is laid in thick oak blocks, 4 by 12 inches in size, fitted into each other so as to give a very solid-feeling floor. All belting is in a cellar underneath, and there is no overhead shafting. Each weaver runs two looms, and is separated from the next weaver by an iron lattice, so there is no strolling up and down the weavers' alleys. The cuts are 30 and 35 meters (meter = 39.37 inches) in length, and mostly 28 to 32 inches wide. Looms are run at 170 picks a minute, and the tariff of wages is arranged for the different goods so that a two-loom weaver makes about 2 lire (39 cents) a day.

The 30 narrow hand looms are running mostly on fancy vesting and dress goods, and run some 60 to 80 picks a minute and get 102 lire a meter. These are operated by girls. The 20 wide looms are all fitted with Jacquard attachments and double boxes, and make "Gros de Tours," or figured bedspreads. These goods are 2½ to 3 meters wide, and the weavers get 1½ lire a meter. The working speed is about 40 picks a minute, and the weavers make such good wages that they only work about every other day. The work of running these heavy looms by foot power is very exhausting and only men can be employed. The hours at this mill are only 9½, starting at 8 o'clock in the morning, stopping from 12 to 1.30, and ending at 7.

The cottage weavers work mostly on cotton and linen cloths and work very long hours. They make 2 to 2½ lire a day. The fact that hand-loom weavers work so much longer hours than the power-loom weavers is one reason why hand looms still compete in Italy.

OTHER LARGE MILLS IN ITALY.

The largest cotton manufacturing establishment in Italy is the Societa Italiana per l'Industria dei Tessuti Stampati, which has a capital stock of $3,860,000, employs about 6,000 work people, and operates 70,000 spindles, 4,000 looms, and 46 printing machines, besides 1,200 meters (4,000 feet) of tables of hand-printing work. This company well illustrates the growth and amalgamation that is going on in the Italian industry. The beginning of the mill was laid some thirty years ago when an intelligent, energetic young man rented a small building and started a very modest dyeing and printing house for hand-woven goods, for the mechanical power of which an old horse was amply sufficient. Under his active, progressive management this small business gradually grew until it became a large mill, then absorbed other companies that were competing, until to-day this establishment represents 40 per cent of all the production of printed goods in Italy.

Among the other largest companies may be noted the following: The four mills of the Cotonificio Cantoni at Castellanza, Legnano,

Besozzo, and Bellano give work to more than 4,000 operatives. The three mills of the Cotonificio at Biella, Occhieppo, and Migliano give work to 3,700. The two mills of the Cotonificio Veneziano, at Venice and Pordinone, employ 3,000. The same number is employed at the mills at Cazzaniga and Vertova of the Cotonificio de Valseriana. The three mills of the Manifattura Tosi at Busto-Arsizio, Castellana, and Novarra, employ 2,500, and the same number is employed by the three mills at Salerno, Angri, and Pellegrino. Two thousand operatives are employed at the three mills at Capriate d'Adda, Ghemme, and Baveno; 1,700 at the two mills at Salerno and Nocera; and 1,500 are employed at the Cotonificio Torinese.

Probably the largest number of spindles is owned by the Cotonificio Valle Seriana, as they have 70,000 in the Cazzaniga mill and 55,000 in the Vertova mill, or a total of 135,000. They also have 700 looms.

FINANCIAL SHOWING OF LEADING MILLS.

The following is a list of the large mills usually quoted on the Milan market, giving the capital, the dividends for 1905 and 1906, and the market value at various periods (1 lira = 19.3 cents):

Name of mill.	Paid-up capital.	Nominal value of shares.	Dividend paid.		Market value.		
			1905.	1906.	1904.	1905.	1906.
	Lire.	*Lire.*	*Lire.*	*Lire.*	*Lire.*	*Lire.*	*Lire.*
Tessuti Stampati	20,000,000	250	16.00	20.00	305	386	370
Manifattura Tosi	8,000,000	250	17.50	20.00	374	360	368
Cotonificio Bergamasco	8,000,000	250	15.00	17.50	289	306	330
Cotonificio Muggiani	8,000,000	250	16.20	20.00	325	332	322
Cotonificio Val d'Olona	7,000,000	200	10.00	15.00	.....	.....	268
Cotonificio Cantoni	7,000,000	250	24.00	26.00	560	556	550
Cotonificio Valle Scriana	6,000,000	250	20.00	25.00	450	454	455
Cotonificio Veneziano	5,000,000	175	12.50	14.00	308	264	260
Cotonificio Fürter	5,000,000	250	15.00	12.50	335	316	285
Cotonificio Busrese Ottolini	5,000,000	200	.....	16.00	230	306	294
Manifattura Rossari and Varzi	4,750,000	250	22.50	25.00	.....	340	390
Lampugni, Galo Abbiati	4,000,000	200	.....	20.00	.....	250	256
Cotonificio Candiani	3,000,000	200	.....	6.25	225	150	148
Industria Cotoniera Carlo Crespi	2,500,000	200	.....	15.00	.....	.....	220
Cotonificio di Trovaso	2,500,000	250	.....	6.50	.....	230	230
Cotonificio Cova	2,250,000	250	.....	16.25	.....	300	300
C. Pacchetti & Co	2,000,000	100	.....	12.00	.....	240	232

RING VERSUS MULE SPINNING COSTS.

NEW MILLS GENERALLY BEING EQUIPPED WITH RING FRAMES.

There have been several articles in Italian journals lately contrasting the advantages of ring and of mule spinning. For a good while the Italians followed the English custom of preferring mule spinning, but the new mills are being equipped mostly with ring frames, because of their saving in floor space and greater production at less cost. The spinning mills that are located at some distance in the country and sell on the cop still prefer the mule, because of the saving in weight effected by the smaller weight of the paper tubes over bobbins. The Italians call ring-spinning frames simply "rings," while mules are known as "self-actings," both terms being borrowed from the English. The articles referred to throw so much light on the cost of plant and operating expenses for "rings" and "self-actings" in Italy that they are translated and the gist of the articles herewith repro-

duced. The wages given by this Italian authority are slightly higher than the average of the Italian mills that I visited, but the speeds given are also slightly higher and the proportion about right for the new mills operated by electricity.

In Italy heretofore it has been considered that ring frames were only suitable for warp under 40s and filling under 24s. This range is now being extended, but the warp numbers in Italy usually made on ring frames are about as follows:

Warp 6s, 6½s, and 6¾s, generally made of American cotton, classification middling Liverpool, pure or mixed with flyings, suitable for heavy goods.

Warp 10s, 12s, 14s, and 16s, made of American cotton, fully middling, pure or mixed with lap waste, much employed for towels and rubbing cloths.

Warp 18s, 20s, 22s, and 24s, made of American cotton, good middling, used for material for furnishings, doublures, fancy weaving, etc., and substituted where possible for 40s and 50s, two ply.

Warp 26s to 28s, American cotton, fully good middling, used for weaving light goods, zephyrs, calicoes, etc.

More rarely warp 30s to 34s, American cotton, fully good middling, for gauze, lace handkerchiefs, etc.

The Egyptian Metafifi cotton is generally adopted for warp 17s, 20s, 25½s, 27s, 34s, and 40s, for sewing thread, and for warp 30s and 40s for ply yarns, for weaving light goods, sateens, alpacas, etc.

Finally the yarn spun on ring frames is used for such purposes as cords, strings, braces, and other articles of passamenterie. In general, the yarn made on mules with three-fourths the twist of the ring warp is good for ply yarns, but less strong.

The yarn is sold in skeins to be dyed, on cops or quills for weaving, or on cones for economy of transport.

PERMANENT INVESTMENT.

To obtain the relative cost of mule and ring spinning in Italy we will figure on the relative costs of building and operating two spinning sheds, one for 20,000 mule spindles and one for 16,000 ring spindles. The preparatory machinery would be the same for each, supposing we are spinning medium numbers, say 16s to 40s. The costs we will obtain will be strictly the spinning-shed costs, and labor that applies to both card and spinning rooms, such as manager, fireman, etc., will be equally divided between the two. The cost of such a ring-spinning shed would be as follows for 16,000 spindles:

Details of plant.	Cost.
1,620 square meters of land, at 10 lire per square meter	$3,126.60
Spinning shed, same dimensions, with saw-tooth roof and double windows, at 35 lire per square meter	10,943.10
40 spinning frames, with 400 spindles each, complete in place, at 11.22 lire per spindle	34,647.36
Transmission:	
40 sets intermediate gearing, at 100 lire each	772.00
45 meters of shafting, 100 millimeters diameter, including couplings and supports with self-lubricating boxes	783.23
1 cast-iron main driving pulley	106.15
40 split pulleys, at 60 lire each	463.20
58 meters of heating pipes (heating surface), vales, etc	335.82
Lighting:	
160 incandescent lamps of 110 volts, 16 candlepower, and work connected therewith, circuit breakers, etc., at 13 lire each	401.44
1 dynamo of 80 amperes, at 14.80 lire per ampere	228.51
Moistening, 16 humidifiers of the Drosophore type, ventilators, 1 pump	979.48
Motive power, all included 192 horsepower, at 375 lire	13,896.00
Accessories and fitting-up expenses, at 2.5 lire per spindle	7,720.00
Total	74,550.00

In the table the horsepower is reckoned at 1 horsepower per 100 spindles, with 7 per cent loss in transmission. Similarly for the mule-spinning room the horsepower is reckoned at 1 horsepower to 120 spindles, but there being more transmission machinery, the total power needed will be 210 horsepower. For the 20,000 mule spindles the area of shed would need to be 2,620 square meters, the dynamo for supplying 240 incandescent lamps would need to be 120 amperes, and the heating arrangements would need to be correspondingly increased. The total cost of the spinning shed for the 20,000 mule spindles would be $78,970.

Calculating the interest on the capital to be 5 per cent and the sinking fund at 10 per cent makes an expense for these two items of $11,182 for the ring spinning and $11,845 for the mule spinning. If put in terms of cost per 1,000 spindles per day, these figures come to $2.33 for the ring spinning and $1.97 for the mule spinning.

NUMBER AND COST PER DAY OF OPERATIVES.

As regards the number of operatives for the two spinning rooms, we have the following:

Personnel.	Cost per day.	Personnel.	Cost per day.
Ring spinning, 16,000 spindles:		Mule spinning, 20,000 spindles:	
1 foreman, at 6 lire	$1.16	1 foreman, at 10 lire	$1.93
40 female spinners, at 2.55 lire each	19.67	10 spinners, at 6.25 lire each	12.06
2 assistants, at 3 lire each	1.16	10 picked threaders, at 3.25 lire each	6.27
12 doffers, at 1.35 lire each	3.13	10 threaders, at 3 lire each	5.79
3 apprentices, at 1 lira each	.58	10 carriers, at 3 lire each	2.90
1 bander, at 2.50 lire	.48	1 rope binder, at 3 lire	.58
1 baler and polisher, at 2.25 lire	.43	1 oiler and polisher, at 3 lire	.58
Total ring-spinning room wages	26.61	Total mule-spinning room wages	30.11
Wages per 1,000 spindles	1.67	Wages per 1,000 spindles	1.51

The labor given in the table is the strictly spinning-room labor. For all labor that is general for both card and spinning room we will divide by two, to get the amount that should be added to the costs of the spinning. Such labor is as follows:

General personnel.	One-half of pay.	General personnel.	One-half of pay.
1 director (manager), at 10,000 lire a year	$965	1 engineer, at 6.25 lire a day	$181
1 bookkeeper, at 4,000 lire a year	386	1 oiler, at 4.5 lire a day	130
3 clerks, at 3 lire each a day, 300 working days	260	1 waste packer, at 3.25 lire a day	94
1 porter, at 1,000 lire a year	97	1 roll coverer, at 4 lire a day	87
1 night watchman, at 3 lire a night	87	Spinning-room proportion of general wages a year	2,432
1 fireman, at 5 lire a day	145		

In addition there will be needed, in connection with the ring-spinning room, 1 mechanic, at 6.25 lire a day, and for the mule-spinning room there will be required 3 mechanics, 2 at 6.25 lire and 1 at 5 lire. This will give as costs per thousand spindles per day for general personnel as 58 cents for the ring spinning and 55 cents for the mule spinning.

GENERAL EXPENSES AND SPINNING COSTS PER POUND.

The general expenses of one year's working may be calculated as follows:

Classification.	Ring spinning.	Mule spinning.	Classification.	Ring spinning.	Mule spinning.
Motive power, heating, and lighting, spinning shed only	$2,070	$2,258	Lubricating oils	$560	$791
Outlay for fittings, etc	772	965	Transmission belts and ropes	540	1,146
Taxes	676	772	Cords and bands	405	579
Fire insurance on $82,025, at 2 per cent	154	162	Brooms, brushes, etc	174	193
Accident insurance, 1 per cent of wages paid	102	115	Leather for rolls, etc	386	347
			General	1,023	965
			Total	6,862	8,293

Divided by 300 and then by the number of spindles, this gives per 1,000 spindles per day for ring spinning $1.43 and mule spinning $1.38. The general expenses added to cost of general personnel therefore show as $2.01 for the ring spinning and $1.93 for the mule spinning.

For the medium numbers from 16s to 40s, whether the operatives be paid by the day or according to work done, if the supervision is well managed and the tariff of wages carefully studied the expenditure will be the same whatever the numbers

spun. Using the figures of cost as deduced we obtain the following table as showing the spinning costs (carding costs not included) per pound on rings and self-acting mules per 10½-hour day per 1,000 spindles:

AMERICAN COTTON.

Number.		Mule spinning.						Ring spinning.					
English.	French.	Interest and sinking fund.	Labor.	General expenses.	Total.	Revolutions per minute of spindles.	Production in pounds.	Cost per pound.	Interest and sinking fund.	Labor.	General expenses.	Total.	Revolutions per minute of spindles.	Production in pounds.	Cost per pound.
16	13.54	$1.97	$1.51	$1.93	$5.41	7,690	352	$0.0153	$2.33	$1.67	$2.01	$6.01	8,500	588	$0.0102
18	15.24	.....	.....	.....	.....	8,150	313	.0173	.....	.....	.....	.....	8,500	500	.0120
20	16.94	.....	.....	.....	.....	8,594	282	.0192	.....	.....	.....	.....	8,500	440	.0137
22	18.63	.....	.....	.....	.....	9,000	256	.0211	.....	.....	.....	.....	8,500	370	.0163
24	20.36	.....	.....	.....	.....	9,405	234	.0231	.....	.....	.....	.....	8,500	328	.0183
26	22.01	.....	.....	.....	.....	9,783	218	.0250	.....	.....	.....	.....	9,000	309	.0194
28	23.70	.....	.....	.....	.....	10,173	201	.0269	.....	.....	.....	.....	9,000	280	.0215
30	25.50	.....	.....	.....	.....	10,272	192	.0282	.....	.....	.....	.....	9,000	249	.0241
32	27.20	.....	.....	.....	.....	10,330	176	.0307	.....	.....	.....	.....	9,000	220	.0273
34	28.90	.....	.....	.....	.....	10,396	163	.0332	.....	.....	.....	.....	9,000	198	.0303
36	30.50	.....	.....	.....	.....	10,472	152	.0356	.....	.....	.....	.....	9,500	181	.0337
40	33.88	.....	.....	.....	.....	10,511	132	.0410	.....	.....	.....	.....	9,500	170	.0354

JUMEL (EGYPTIAN) COTTON.

40	33.88	.....	.....	.....	.....	8,913	119	$0.0455	.....	.....	.....	.....	8,500	170	$0.0354
42	35.57	.....	.....	.....	.....	8,825	112	.0483	.....	.....	.....	.....	8,500	161	.0373
44	37.27	.....	.....	.....	.....	8,730	106	.0510	.....	.....	.....	.....	8,500	150	.0400
46	38.96	.....	.....	.....	.....	8,692	99	.0546	.....	.....	.....	.....	8,500	139	.0432
48	40.56	.....	.....	.....	.....	8,658	95	.0570	.....	.....	.....	.....	8,500	130	.0462
50	42.35	.....	.....	.....	.....	8,628	88	.0615	.....	.....	.....	.....	8,500	123	.0488
52	44.04	.....	.....	.....	.....	8,604	84	.0644	.....	.....	.....	.....	8,500	119	.0505
54	45.74	.....	.....	.....	.....	8,582	79	.0685	.....	.....	.....	.....	8,500	112	.0536
56	47.93	.....	.....	.....	.....	8,564	75	.0721	.....	.....	.....	.....	8,500	106	.0567
58	49.15	.....	.....	.....	.....	8,550	71	.0762	.....	.....	.....	.....	8,500	99	.0600
60	50.82	.....	.....	.....	.....	8,540	68	.0795	.....	.....	.....	.....	8,500	95	.0633

This Italian authority from the foregoing table showed that in general the production of the ring spinning was 30 per cent more than that of the mule spinning, but for short-fibered cotton prefers the mule, as in such cases the speed of the ring frames will have to be reduced, as is also the case when much waste is run in.

It will be noticed that in this table he gives the numbers of yarn in both English and French counts. The English system of yarn numbering is in general use in Italy, but some mills still cling to the French system. In the English system the number of 840-yard hanks of yarn contained in a pound is the "number" of the yarn. In the French system the number of 1,000-meter lengths of yarn contained in 500 grams (about 1.102 pounds) fixes the number. The 1,000-meter length of yarn is called a "matassa." As the proportion of the length of the matassa to the skein is not in proportion to the weight of 500 grams to 1 pound, therefore for the same yarn the French numbers will be lower than the English, and No. 1 English count will equal No. 0.847 French count, No. 10 English count will equal No. 8.47 French count, etc.

MILL LABOR.

CONDITIONS AND WAGES.

GRADUAL INCREASE IN PAY SCALE AND SCARCITY OF OPERATIVES—EFFECTS OF CHANGING CONDITIONS.

The Italian cotton manufacturer has heretofore had quite an advantage over most of his competitors in being able to obtain abundant cheap labor, and this labor being, if not highly skilled, at least sober, industrious, and fairly intelligent. There are signs that he is gradually losing this advantage, and that labor is beginning to get scarcer and higher priced. In the last five years there have been many new industries started in northern Italy and the old ones have greatly expanded, while at the same time the increasing prosperity of the people has made farming more profitable.

Labor can not yet be said to be scarce in Italy in the sense that it is in some other parts of the world, for instance in our Southern States, but the laborer is beginning to find himself to be of importance, and that if he strikes for higher wages he can not be readily replaced, as of old. Just at present the great expansion of the silk industry in northern Italy is being checked for want of sufficient skilled help, and both the wool and cotton mills are beginning to import help from southern Italy, and to try to get back labor from Germany and Austria. A large number of Italians work in German and Austrian factories, especially those adjacent to the border; for, as a rule, the wages have been slightly higher there than in Italy, but if wages keep advancing at their present rate in Italy a portion of this will be reclaimed.

Taxes have been so high in Italy and remuneration so low that hundreds of thousands of Italians have sought better opportunities abroad, mainly in the United States and Argentina, and their going has had quite an influence on the home labor market. The prosperity of Italy is on the increase, and the workmen, finding themselves in a stronger position than ever before, are demanding a corresponding increase in wages, and by means of strikes, in most part engineered by various labor unions, they are gradually reducing the hours of labor and raising the standard of pay.

HOURS OF LABOR—WOMEN AND CHILDREN EMPLOYEES.

Formerly the mills worked 12 hours or over, and in some cases ran steadily in flush periods up to 17 hours a day. This was done by putting the operatives on a piecework system, as far as possible. When he works by the day the Italian operative wishes to leave before the whistle blows, but if he works by the piece he will work as many hours as it is possible for him to stand. Even now manufacturers often avail themselves of this fact to increase their production when orders are to be rushed. In the remoter country districts a few mills still work 12 hours, but the tendency everywhere is for a shorter workday. Hand-loom workers at home still work

very long days, and this is one reason why they are able to survive the competition of the power loom. The present hours of labor in Italian cotton mills average probably 10½. Where two shifts are worked the hours have in some cases been reduced to 9, and generally for night work the lesser hours are run, but the new law has stopped nearly all night work.

There is no law regulating the hours of labor per day or per week, but there is a law forbidding women and children to work at night. This law was passed in 1902, to take effect June 30, 1907, the five-year interval being allowed the mill men in which to double their plants. This was made necessary by the fact that the great bulk of Italian mill labor consists of women and children. The Government figures for 1903 showed the operatives in cotton mills to be 138,880, of which 34,335, or 25 per cent, were men; 82,056, or 59 per cent, were women; 4,739, or 3 per cent, were boys; and 17,750, or 13 per cent, were girls. These figures show that the women and children comprise three-fourths of the total employees.

LUNCH HOURS, PAYMENT OF WAGES, AND TIME KEEPING.

In regard to the arrangement of the working hours, there is always a good interval allowed in the middle of the day for lunch. The Italian does not believe in the American quick lunch, and likes to take plenty of time over his meal, sip his wine, and converse. Usually the mid-day rest is 1½ hours, never under 1 hour, and in a great number of mills it is a full 2 hours. For the average 10½-hour day the work is usually started at 7 o'clock in winter and at 6.30 in summer, and run until 12 o'clock; resumed at 1.30 o'clock and continued to 6.30 in summer and 7 in winter. In many places the employees prefer not starting until 7.30 in the morning. In a few mills they start as late as 8 o'clock and run that much later at night to make up for it.

While the hours of starting and stopping are officially as given, there is really a difference of 10 minutes. The Italian operatives will not run their looms or other machines up to the time the whistle blows, but some 10 minutes before will start getting ready to leave, washing up, etc., and as the managers have found it impossible to change this they now require, in most mills, that employees shall be at the mill 10 minutes before the starting hour, so that they will get their wraps off and be ready to start their machines promptly at the sound of the whistle, and a bell is rung 10 minutes before the stopping whistle, so they can get ready to leave. This really reduces a 10½-hour working day to 10 hours and 10 minutes. There is no stop made on Saturday afternoon and the mills work the full time, as on other days. In most places in Italy shops are open half the day Sunday, so the mills see no reason to stop on Saturday for the employees to do their shopping.

Most mills pay off either every Saturday night or every second Saturday night. Some mills use pay envelopes, but in other mills each employee keeps a small pay book in which, when the clerk hands him his wages in cash, he enters the amount and signs his name. He keeps the book, but his signature is evidence that he has received the money. Usually one to two weeks notice is required from employees on leaving a mill and either one-half to one week's wages are kept back, or else a fixed amount, 5 francs (96.5 cents) at *some mills and 10 francs* ($1.93) at others.

Some of the mills, especially the large ones, have at the entrance a large wall case with numbered brass checks suspended from hooks, and each workman, as he goes in, takes his tag with him, and replaces it when he leaves. The number of tags remaining on the board show the operatives absent. Inside the mill the operatives go by their numbers, and their wages are paid according to number, not name.

BASIS OF MILL WAGES.

It will be noticed that the wages seem to be all stated by the day. The custom in a large number of the mills is to fix a day wage for a certain amount of work, and then pay extra for anything over this. Thus at one mill I found most of the looms running on flannelets for the Turkish trade. These goods were made 55 inches wide on the loom and afterwards split in two. The looms were making 150 picks per minute and putting in 32 picks to the inch. Each employee ran two looms and was paid 3 lire (57.9 cents) a day, for which she was required to get a cut from each loom. The cuts were 50 meters (54.5 yards) each, so this was figuring on about 70 per cent production as the day's run was set at 10½ hours, but was really only 10¼. Anything over a cut was paid for extra in a slightly increased ratio. On fly frames and other machines the same method is pursued. In some mills I found that the day's wages for all persons in the spinning room were based on a certain production from the room, and at the end of the week their wages per day were over or under the set day wage according to the total production obtained.

In southern Italy the wages are lower than in northern Italy, and might be given as 1½ to 2 lire (29.1 to 38.6 cents) for the first, as against 2 to 3 lire (38.6 to 58 cents) for the latter, but wages vary so, even between mills on the same goods in the same locality, that this is very general. The country mills pay much less than the city mills, but as a rule the help is less efficient.

The following is a daily wage table from a southern mill, as published by the Government; hours of work 11; days worked in a year about 300:

Workers.	1894.	1898.	1903.
	Cents.	*Cents.*	*Cents.*
Carding: Men	34.7	44.2	48.3
Fly frame: Women	15.4	21.2	27.0
Spinning:			
Men	34.7	51.4	56.0
Girls	13.5-15.4	13.5-23.3	17.4-25.1
Cop winding: Women and girls	8.7-21.2	17.4-25.1	15.4-25.1
Twisters:			
Men	34.7	53.1	54.0
Women	15.4	21.2	21.2
Spoolers: Women and girls	9.7-23.2	13.5-27.0	13.5-27.0

The average daily wages paid in a country mill near Milan have gradually increased from 30.9 cents for men and 11.6 cents for women spinners in 1871 to 47.3 cents for men and 36.1 cents for women in 1907, while for weaving the wages have increased from 15.4 cents to 39.6 cents in the same period. The hours of labor have also been decreased from 12 to 10½ per day. The number of days worked per year is about 290.

MANNER OF LIVING OF THE MILL WORKERS.

Very few Italian mills have tenement houses or mill cottages. A good many supply houses for the overseers, but the employees lodge themselves. In the country a large number own their own houses, and frequently walk a good distance to the mill every day. In the cities the workers usually lodge in big crowded flats near the mill. The average family will crowd into two rooms, and will pay from 6 to 20 francs ($1.16 to $3.86) rent a month. A few mills have built special tenement houses where girls, who come from a distance, can board and be under the charge of matrons appointed by the mill, but this is not general; in most cases they stay with relatives. A mill at Turin, one of the few that has its own mill cottages, has the cottages built in square, two-story style, with two rooms on each floor, and charges 12 francs ($2.32) a month for each floor. A manager gave as reasons for the mills not having houses for their operatives, that so many were located in the country near the operatives' homes, and also that not all of the operatives were cleanly, and that when living in houses not belonging to them they were very careless of the property.

The average Italian operative gets low wages and lives cheaply. Spaghetti and wine seem to be his main dependence for a meal. The average country operative does not have a great variety of food and, in Piedmont and Lombardy, for instance, the regular menu is as follows: Breakfast—bread and milk mush; dinner—spaghetti, potatoes, and milk mixed into a porridge, polenta (corn-meal mush), and wine; supper—cold spaghetti porridge, cold polenta, cheese, and some wine.

Dinner in the middle of the day is the heartiest meal, and enough spaghetti porridge and polenta are then made up to last for both dinner and supper, being eaten cold for the latter meal. Chestnuts are also a staple article of food, and radishes, with olive oil and other vegetables, when procurable. In the towns the operatives as a rule get higher wages, and have a somewhat more varied diet, including meat. It will be noticed that wine is always taken at the midday meal, and usually a smaller quantity at supper. This is of course not an intoxicant, but a regular part of the diet. In fact I was informed by a physician that in Piedmont, where there is a peculiar penetrating dampness in the atmosphere in the fall, wine was almost a necessity to keep in good health. Wine is in the reach of all, even of the poorest, for even the better class of table wine, of the kinds used by the operatives, only costs 40 centimes a liter (7.7 cents per 1.05 quarts), and less if bought in bulk.

EFFICIENCY OF THE OPERATIVES.

The Italian operative is less efficient than the English or American. On some lines this has the effect of making the labor cost higher than in England, but on the coarser goods the labor cost is less than in England. A larger portion of the operatives are women, which partly accounts for the smaller quantity of work turned out, and they come of a people who have been engaged in agricultural work, and who are comparatively new to manufacturing of any kind. The managers say that the operatives are yearly becoming more efficient and skillful. The Italian is dexterous with his hands, is fairly efficient, and seems to adapt himself to new work readily. Some of the

work done by Italian designers, even for medium-grade goods, is very artistic. At first all the superintendents, here called "directors," were imported from Switzerland, Germany, or England to operate the mills, but these are steadily being replaced by Italians, and few of the former now remain.

The wages paid in the various mills vary greatly and with the continued strikes they are changing continually. The condition of the labor in the various mills, the hours worked, why strikes are inaugurated and how settled, can not be better shown than by the notices published in regard to these strikes.

CAUSES AND RESULTS OF STRIKES.

The following notices are selected from among the dozens of official ones published each month in the Bulletin of the Cotton Industrial Association:

Villanova sul Clisi (*Brescia*).—The limited liability company, the Cotonificio Bresciano Ottolini, employs the following operatives: 19 men as "batteurs" (picker-room hands) at 39 cents a day; 24 at the cards at 39 cents a day; 57 at the "self-actings" (mules) at 68 cents, and 10 boys at 21 cents a day; 29 women at the cop winders at 32 cents and 2 girls at 27 cents; 12 adults at the twisters at 21 cents; 6 carriers at 46 cents a day; all these for 11 hours. There are also 10 assistants, part for 11 and part for 9 hours, at 77 cents each; 9 men at the ring frames at 37 cents, 1 boy at 17 cents, 110 women at 28 cents, and 122 girls at 22 cents; 5 men at the fly frames at 42 cents and 210 women at 37 cents for 9 hours. In the reel room there are 6 men at 44 cents, 37 women at 33 cents, and 1 girl at 27 cents; for bunching and packing the skeins 4 men at 37 cents, 20 women at 33 cents, 2 girls at 23 cents; also 18 men in the machine shop at 52 cents, all for 11 hours. The force, for technical reasons, is divided into two sections, one for the old spinning department and one for the new. In the old spinning department the hands are divided into two shifts of 9 hours each, while in the new only one shift is used, which works 11 hours. The operatives in this last section, in order to obtain equality with the others, initiated a strike on July 12, in which 44 men, 97 women, and 65 girls took part. Through the intervention of the secretary of the local labor union the workmen desisted from their strike and returned to their work on July 13, without any concessions being granted. It is to be noted though that when the reduction of the hours of labor of the first section took place from 11 to 9 hours, the tariff for excess work there was increased from 12 to 15 per cent, and in the second section it was also increased from 7 to 8 per cent.

Leghorn.—The firm Cantoni-Coats for the manufacture of sewing thread gives work to 250 men at 58 cents and to 950 women at 23 cents per 11-hour day. The firm wishing to introduce in the several branches "lustraggio and tavelle" (glazing and roughing), a system of labor that meant a reduction of wages, the whole body of operatives on July 8 initiated a strike, asking a general increase of wages. The labor union of Lucca directed the strike, the president of the local chamber of commerce intervened, and the firm granted an increase of 5.8 cents per day during apprenticeship and of 2.9 cents for those on the roughening work, and besides made a formal promise for a general increase of the rate of remuneration. On July 29 work was resumed. During the strike $4,053 was expended in assistance to the strikers.

Clavesana (*Cuneo*).—The Lombardy Yarn Manufacturing and Printing Company employs 407 hands, of which 7 are mechanics at 77 cents a day; 83 machine tenders, carriers, and card and picker room hands at 40 cents a day; 12 boys, 228 women, and 70 girls on the draw frames, fly frames, ring frames, and other work at wages of 24 cents, 36 cents, and 22 cents, respectively; 6 assistants at 96.5 cents each, and a mason at 58 cents. The hours of work were 11. Demanding an increase in the tariff of remuneration, a strike was inaugurated July 8, and in acceding to their demands the firm made the hours of labor 10 and raised the wages of the 83 picker-room hands, carders, carriers, and machine tenders from 40 to 44 cents; of the 12 boys employed on the draw frames, rings, and fly frames from 24 to 26 cents; of the 228 women from 36 cents to 41 cents; and of the 70 girls from 22 cents to 24 cents a day. Work was resumed on July 15.

Scanzo (*Bergamo*).—On March 9 there was initiated a strike at the weaving plant of Carlo Caprotti by 3 men and 198 women weavers making 31 cents a day, 46 girls running cop winders at 16 cents a day, 50 spoolers at 21 cents a day, 12 warpers at 29 cents a day,

and 16 drawing-in hands at 35 cents a day. The weavers demanded that the fortnightly minimum requirements be reduced by one piece of cloth, the cop winders, spoolers, and warpers asked an increase in wages. Fourteen men remained employed until the 14th at 39 cents a day, and 20 boys at 19 cents a day. The strikers, notwithstanding they were not organized, were assisted by the Catholic Society of Labor of Bergamo. They obtained a reduction of the minimum required and also a concession that loom stoppage not by their fault be not counted. The increase of wages will be settled by an arbitrator. The work began again on March 16.

Volciano, near Roe.—In the cotton manufacturing establishment of Valle Sabbia Hefti & Co. there are employed 596 hands, of whom 168 are men at 42 cents, and 326 women at 35 cents a day in the spinning department, and 55 men at 42 cents and 47 women at 33 cents in the weaving department. On July 12, 382 of the above operatives—150 men and 232 women—raised a strike, sending representatives to the owner and asking 9 hours per day instead of 11, and an increase of 20 per cent on their wages. The firm did not answer, and on July 27 the operatives presented, through the secretary of the Brescia Labor Union, the following memoranda: A reduction of the hours of labor for all categories of workers from 11 to 10; an increase of "cottimi" (remuneration for production over that required) in proportion; the same statu quo for the workmen paid by the day; a general increase of wages in proportion to be agreed on; the approval of the tariff of wages by the Chamber of Commerce and by the Chamber of Labor; a bettering of the hygienic conditions of the places for labor; an assurance that no measures will be taken against the strikers.

On July 30 a discussion took place between the workmen's commission and the firm, and it was agreed, first, that on September 9 the mills will employ two shifts at 9 hours of labor for each in the spinning department, and not alter the wages in force; for the weaving department the hours of labor are to be reduced to 10½, delaying a half hour entering in the morning and no variation to be made in wages; second, the modification of the hours of labor for the weaving department will start on the same day that the two shifts are organized for the spinning department. During the strike the work was abandoned by all hands and was resumed August 1, except by 7 workmen who discharged themselves during the strike and were not afterwards taken back by the firm. During this time several workmen became subscribers to the Brescia Labor Union; the manufacturers belong to the Cotton Industrial League at Milan. For assistance to the strikers $36.67 was spent, which was raised through subscription; several innkeepers of the place, favoring the strike, credited the workmen for food, in order that they might strike.

Turin.—The Cotonificio Subalpino employs 143 hands, of which 56 are men, 3 boys, 78 women, and 6 girls. The work is thus divided: 10 men in the card room at 44 cents a day and 32 women at 33 cents; in the spinning room 30 men at 44 cents, 3 boys at 29 cents, 19 women at 35 cents, and 6 girls at 28 cents; on the twisters 8 women at 31 cents; in the reel room 6 women at 33 cents; at various day work 15 men at 48 cents and 14 women at 31 cents. The hours of work for the men and boys are 11 and for the women and girls 10 per day. On June 25 a strike was caused by the failure of the mill to carry out exactly the provisions of the new law in regard to night work of women and girls. The League of Textile Workers assisted the strike, and on June 27 the representatives of the operatives obtained the abolition of night work for the women and girls. For the men the hours were arranged as follows: 10 hours nominally, 9 hours effective. The women were divided into two shifts, the first working from 5 a. m. to 2 p. m., the second from 2 to 9 p. m. The women in this establishment are employed on the speeders, ring frames, and reels. Work was totally suspended three days. This question was settled by the assistance of the treasurer, the secretary of the League of Textile Workers, and of that of the Federation of Textile Workers of Milan.

Castelleone (Cremona).—The spinning mill of Rotondi & Co. employs about 20 men at wages of 19 to 48 cents and about 200 women at 4 to 29 cents per day. The men worked 11 hours and the women 10½. All belong to the League of Catholic Workmen. They demanded the following: (1) That the deposit required of each operative be reduced to a maximum of 96.5 cents, to be returned when he quits the mill after 8 days' previous notice; (2) a less harsh application of fines, always in the presence of the operative and with the approval of the assistant, and that none be levied where absent through sickness; (3) assurance of a minimum of salary of 24.1 cents, except where one does not merit any more; (4) hours of work to be 9½ and no night work. The strike started July 25. On the local syndic intervening to settle the strike the firm was allowed a month in which to arrange the hours of labor and to concede the demands and the maximum of the deposit was raised to $1.93. The strikers resumed work *July 27.*

COTTON GOODS EXPORTS.

STEADY GROWTH OF THE INDUSTRY.

EXTENT OF FOREIGN TRADE—COMPETITION WITH THE UNITED STATES IN VARIOUS COUNTRIES.

A study of the export business of Italy, in this line, is of value just at present, for not only does Italy ship good-sized orders to the Philippines, but her goods come into competition with those from the United States at other points, especially in South America, the Red Sea ports, and Turkey. In the latter two places the cheaper Italian sheeting has been substituted for the American, and, in fact, in Turkey the American sheeting has been almost driven off the market.

Italy imposes an import duty on raw cotton of 3 lire per quintal (57.9 cents per 220.4 pounds) and a duty on cotton batting of 9 lire ($1.74) per quintal, but this is more than returned in the shape of a rebate on cotton manufactured for export, yarns receiving back 4 lire (77.2 cents) and textiles 4.5 lire (86.9 cents) per quintal. In 1905, for instance, there were exported 101,466 quintals of yarn and 234,096 quintals of textiles; therefore the cotton manufacturers were refunded 1,459,296 lire ($281,644).

The following table illustrates very clearly the progress of the Italian cotton industry, showing the increasing consumption of cotton, and the increasing exports and decreasing imports of cotton yarn and cotton cloth. The figures are average yearly figures for five-year periods up to 1900, when yearly figures are given:

Year.	Raw cotton (net imports).	Yarn.		Cloth.	
		Imports.	Exports.	Imports.	Exports.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
1871-1875	37,188,533	22,122,650	45,182	25,742,500	432,425
1876-1880	53,662,331	21,029,466	379,308	23,068,827	830,908
1881-1885	101,525,056	20,592,854	220,620	28,278,642	820,247
1886-1890	145,011,298	9,274,212	682,358	22,736,684	1,429,514
1891-1895	194,979,284	3,419,065	1,774,220	11,406,582	6,580,703
1896-1900	262,384,878	1,867,229	11,991,523	4,296,037	20,876,590
1901	287,899,293	1,801,990	21,103,520	3,575,990	32,365,300
1902	311,444,816	1,832,846	19,414,816	4,016,129	30,262,022
1903	324,573,162	1,977,870	20,280,767	4,006,872	38,110,686
1904	324,931,312	2,065,589	20,787,246	5,957,192	54,149,635
1905	345,223,320	1,820,063	22,550,446	6,607,151	54,869,241
1906	384,410,660	1,821,724	22,877,300	8,038,208	61,744,840
1907 (six months)	303,481,102	1,006,567	9,761,516	5,177,857	27,292,573

The net import of cotton given in the first column of the table is the total cotton imported and entered for consumption, not counting the re-exports, which go mostly to neighboring sections of Germany, Austria, France, and Switzerland. With the exception of a few hundred bales grown in southern Italy, there is no cotton raised

in the Kingdom, and the total raw material for the cotton manufacturing is imported. The cotton import figures, the net amount as given above, is therefore the exact measure of the consumption of the Italian mills, and show that in 1906 there was consumed the equivalent of 768,821 bales of 500 pounds, and that the consumption has increased steadily for the last thirty years or more.

COST OF RAW COTTON TO MANUFACTURERS.

The bulk of the cotton so imported comes from the United States, but this is mixed with 10 to 30 per cent of Indian cotton, so that the cost is much lowered. For instance, in 1905, 74.52 per cent of the total was American, 4.29 per cent Egyptian, and 21.19 per cent Indian and Levantine. Taking their average values per quintal (220.46 pounds) we find the average value per quintal of the whole to be as follows:

Cotton.	Average yearly value.	Percentage of total imports.	Average value of the whole.
American	$21.81	74.52	$16.25
Egyptian	34.93	4.29	1.50
Indian, etc	18.33	21.19	3.88
Total	.....	100.00	21.63

The average value of the American, Egyptian, and Indian cotton was 9.89, 15.85, and 8.32 cents a pound, respectively, and the average works out to 9.81 cents a pound. Leaving out the small amount of Egyptian, which is mostly used separately for finer work, when the American and the Indian is used together the proportion is 25 per cent Indian to 75 per cent American, and the average value is reduced to 9.5 cents. Larger proportions are frequently used, especially for sheetings, and this fact, coupled with cheaper labor and heavier sizing, enables them to produce an article that can undersell the American in markets where cheapness and not quality is the main consideration.

The average value of all the cotton imported into Italy works out at 112 lire per quintal, or 9.81 cents a pound. The proportions of each varies each year, but worked out in similar manner the average value of the cotton imported into Italy for the ten years before this were as follows:

Year.	Lire per quintal.	Cents per pound.	Year.	Lire per quintal.	Cents per pound.
1896	100	8.76	1901	117	10.25
1897	92	8.05	1902	110	9.63
1898	84	7.35	1903	120	10.51
1899	82½	7.22	1904	150	13.13
1900	100	8.76	1905	112	9.81

It will be noticed that 1904 was the record year as regards price of raw material, and this had quite a bad effect on the export trade. The yarn exports were immediately checked, but cloth being sold ahead, its effect on the export of that article did not show up adversely until the next year. When cotton dropped back to normal, however, the mills made good profits again, and the export business quickly outstripped its former figures.

PRICES OF YARN IN MILAN.

The following table, showing the average prices per pound of the ordinary numbers quoted in the Milan market reports, also shows the high figures reached during 1904 on yarn:

Description.	1900.	1901.	1902.	1903.	1904.	1905.
Single yarns:	*Cents*	*Cents.*	*Cents.*	*Cents.*	*Cents.*	*Cents.*
Warp and filling, India I, 12s	14.89	12.43	13.22	13.84	15.68	13.75
Warp and filling, India II, 12s	14.54	12.22	12.43	13.49	14.80	12.87
Warp, America I, 16s	17.34	15.06	15.24	16.64	19.13	15.85
Warp, America I, 24s	18.65	16.46	16.55	17.95	29.25	17.08
Filling and medium twist, America II, 24s	19.27	16.33	.....	17.69	20.23	16.81
Warp, America I, 30s	19.53	17.25	.....	18.56	21.28	17.86
Medium twist, America II, 30s	19.27	17.12	.....	18.30	21.02	17.60
Warp, America I, 38s	21.89	19.35	19.44	21.02	19.12	20.14
Filling, America I, 44s	21.37	19.09	19.18	20.67	23.07	20.58
Doubled yarns:						
India I, 12s, 2-ply	16.83	14.46	15.08	15.63	17.46	15.68
America II, 24s, 2-ply	20.24	18.10	18.58	19.95	22.15	18.88
America I, 32s, 2-ply	21.99	19.75	20.14	21.21	23.39	20.06
America I, 40s, 2-ply	23.74	21.21	21.99	22.83	25.19	21.99

All yarns for export are put up in packages of 4.5 kilos each, which is the same as the English package of 10 pounds. Usually 40 of these bundles go to a bale, but this varies.

The imports of yarn into Italy show a steady decrease, and practically the only yarns imported are special numbers or high counts. Colored ply yarns form the largest single item in this list. The bulk of the yarn imported comes from Great Britain and Germany. The exports of yarn show a correspondingly steady increase, and Italy's chief customer, Turkey, prefers to buy it gray and dye locally in small lots as needed. Besides Turkey the other countries that buy Italian yarns are mainly Argentina, Egypt, Austria, and the Balkan States.

IMPORTS AND EXPORTS OF YARNS AND CLOTHS.

The decrease in yarn imports, except for colored ply yarns, and the decrease in cloth imports, except of fine goods, also the steady increase in yarn exports, especially gray yarns, and of cloth exports, especially colored goods, is well shown by the following table, in which are given the main classes of goods imported and exported for 1895, 1900, and 1905:

Description.	Imports.			Exports.		
	1895.	1900.	1905.	1895.	1900.	1905.
Single yarns:	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Gray	970,862	275,500	230,538	435,951	7,033,405	14,647,123
Bleached	51,794	45,843	44,040	253,901	750,242	1,328,792
Dyed	55,982	60,390	33,721	592,435	2,031,727	1,959,356
Ply yarns:						
Gray	730,626	196,597	173,896	71,410	981,221	2,112,534
Bleached	144,362	57,524	54,218	176,540	344,706	511,548
Dyed	243,983	401,348	429,560	828,043	1,774,881	1,553,600
Plain goods:						
Gray	2,282,462	333,686	316,715	149,431	1,222,118	6,615,526
Bleached	1,308,294	627,258	599,929	390,549	854,932	1,491,667
Colored or dyed	1,189,278	789,032	723,573	9,056,897	21,049,522	36,851,762
Printed	3,609,932	1,058,140	867,715	771,620	2,861,453	4,770,778
Figured textiles and damasks	577,228	266,684	702,194	575,685	1,236,664	859,119

Recently, with the increase of mercerization works, they have begun shipping good amounts of mercerized yarn to Damascus and other points in Turkey. The shipments of sewing thread are also

increasing in the lower numbers. The bulk of the Italian yarn exports are, as stated, gray yarns, and they are mostly the medium numbers. The quality, and therefore the price, is above the Indian but under the English yarns of similar counts.

In cloth imports, as in the yarn imports, there was a steady decrease for a long period, but since 1901 there has been a slight increase in the amount of fine cloth imported. This seems to be due to the fact that the increased wealth of Italy enables the people to buy many luxuries, hitherto forbidden, and this tendency has shown itself, to a certain extent, in the purchase of finer goods, which the Italian cotton manufacturers, while controlling the home market on general lines, have not yet found a demand for in sufficient quantities to be profitable. On the other hand the exports of cotton cloths have made rapid progress, and Italy competes abroad in many markets with Great Britain, as well as other countries.

DETAILS SHOWING VALUE OF TRADE.

The following table shows more in detail the cotton and cotton manufactures imported and exported in 1906, giving not only the weight and value of the yarn and piece goods, but also the sewing thread, ribbons, knit goods, made-up goods, and all other manufactures of cotton:

Description.	Imports.		Exports.	
	Pounds.	Value.	Pounds.	Value.
Cotton in bales	403,374,578	$39,561,473	18,708,700	$983,107
Cotton batting	29,534	3,621	2,865	17,550
Total cotton	403,404,292	39,565,094	18,711,165	1,000,657
Cotton manufactures:				
Yarn—				
Gray	300,185	67,820	14,503,642	2,527,410
Bleached	33,721	8,209	1,292,866	243,410
Dyed	40,774	11,033	1,479,545	312,242
Twist—				
Gray	147,448	63,009	2,866,522	754,745
Bleached	48,929	17,952	869,478	175,880
Dyed	421,625	145,099	1,570,129	365,732
Sewing thread	827,602	652,244	295,116	116,292
Cotton twine	2,645	556	33,721	7,087
Fish nets	24,244	16,984	5,289	3,706
Vigogna yarn	440	104	.....	.....
Total yarn, etc	.....	983,010	.....	4,506,504
Plain gray goods	555,408	158,553	7,926,686	1,756,135
Plain bleached goods	777,351	260,032	2,173,144	542,349
Colored or dyed goods	1,095,388	416,297	38,718,109	10,713,884
Printed goods	901,436	422,313	6,942,820	2,675,065
Velvets	667,371	462,988	220	168
Embroideries	.....	461,340	1,910,648	50,194
Embroidered textiles	236,489	381,592	109,318	198,751
Muslin and veiling	186,230	230,970	40,333	37,373
Damasks, etc	441,241	197,868	839,724	373,700
Tulles	30,415	46,841	16,089	25,360
Mercerized goods	93,229	37,472	610,508	192,994
Ribbons	198,801	83,561	284,536	119,598
Tape	150,092	77,055	546,151	283,725
Box cloth	121,220	46,706	24,464	9,426
Brocades	4,188	2,273	.....	.....
Buttons	220	104	.....	.....
Antiseptic cloth	3,967	1,390	.....	.....
Handkerchiefs and shawls	188,883	84,038	.....	.....
Knit goods	41,410	102,234	530,723	189,827
Made-up goods	761,262	236,799	2,221,412	834,719
Mixtures	469,452	388,461	724,014	577,375
Cotton oil cloth, etc	974,609	275,069	368	9,949
Cotton belting	2,424	955	.....	.....
Total cotton manufactures	.....	5,357,921	.....	23,097,156

COUNTRIES TO WHICH EXPORTS ARE MADE.

The following table shows very clearly the great expansion in Italy's export of manufactures of cotton and the directions in which this flow has found outlet:

Country.	1895.	1900.	1901.	1902.	1903.	1904.
Argentina	$1,873,000	$4,203,000	$3,375,000	$3,427,000	$5,440,000	$7,023,000
Turkey in Europe	560,000	1,658,000	4,029,000	3,256,000	3,281,000	4,049,000
Turkey in Asia	48,000	530,000	440,800	792,000	1,352,000	1,747,000
Egypt	132,000	848,000	927,000	885,000	1,099,000	1,582,000
Austria-Hungary	48,000	651,000	867,000	306,000	740,000	1,318,000
India	16,000	829,000	603,000	299,000	494,000	898,000
Roumania	73,000	137,000	277,000	1,028,000	820,000	830,000
Brazil	831,000	752,000	571,000	697,000	743,000	583,000
Chile	36,000	468,000	245,000	323,000	418,000	481,000
Switzerland	141,000	257,000	441,000	214,000	270,000	454,000
Peru	56,000	214,000	244,000	179,000	205,000	335,000
United States	140,000	125,000	112,000	241,000	354,000	277,000
Germany	131,000	240,000	261,000	168,000	178,000	273,000
Greece	13,000	84,000	183,000	72,000	182,000	270,000
France	135,000	199,000	297,000	258,000	200,000	224,000
Central America	36,000	232,000	229,000	136,000	237,000	214,000
Australia	1,000	116,000	183,000	186,000	253,000	205,000
Tunis	55,000	64,000	140,000	119,000	139,000	161,000
Uruguay	230,000	121,000	20,000	266,000	255,000	133,000
Mexico	1,000	65,000	61,000	88,000	131,000	112,000
All others	155,000	576,000	554,000	670,000	715,000	1,543,000
Total	4,711,000	12,369,000	14,259,000	13,610,000	17,506,000	22,712,000

This is a very interesting table and shows a steady growth in the shipment of cotton goods from Italy. It shows that Italy's best markets are found in Argentina, Turkey, Egypt, Austria, India, and Roumania. Colored goods form the bulk of the exports.

CLASSES OF COTTONS EXPORTED.

Gray goods go to the Italian colony of Eritrea in Africa, Turkey, Egypt, and Argentina, in the order named, Cabots being the largest item in this list. Bleached goods go mainly to Argentina and Turkey, but the total export is not very large, and consists mostly of shirtings, piqués, lenos, table linen, etc. Printed goods go to Turkey, Egypt, and Argentina, and consist of shirting prints, printed flannelets, barchent, zephyrs, printed linings, cretonnes, printed handkerchiefs, etc. Colored goods form the bulk of the export, and go in largest quantities to Argentina, Turkey, Egypt, India, and the Balkan States. Quite a variety of goods is included under this heading, especially Oxfords, cotton trouserings, mixtures, flannelets, barchent, sateens, common woven colored goods called Florides and Caroline, linings, reps, cretonnes, mercerized goods, and towels.

It will be noticed that the Italians are working their nearest fields—that is, the countries bordering on the Mediterranean—and South America, then India. In China, Australia, etc., they do little. Argentina, while not near to Italy in miles, through numerous Italian steamship lines is as near to Genoa as Europe is to New York. Argentina is the most important country in South America, and its trade is over one-fourth that of the whole Southern Continent. The Italian emigrants go in larger numbers thereto than to any other country with the exception of the United States, and this has been a great factor in increasing the sale of Italian products in that country. Italy's main exports to Argentina are cotton manufactures, and their sales are increasing steadily. The official statistics of Argentina for

1905 (as published in the Bolletino at Milan) show the following as the main cotton manufactures imported from Italy in that year:

Article.	Value.	Article.	Value.
Coarse yarns	$6,337	Made-up goods	$108,244
Ordinary yarns	491,491	Lace and tulle	85,812
Special weaving yarns	20,922	Ribbons	60,369
Yarn for wax matches	38,530	Table covers and napkins	45,094
Sewing thread on spools	10,922	Passementerie	21,874
Gray goods	211,956	Packing linen	19,271
White goods	254,706	Cords	16,922
Printed goods	470,120	Coverlids of waste cotton	11,549
Dyed goods	3,291,784	Socks	10,083
Coverlids	242,167	Bags	5,260
Towels	162,032		
Handkerchiefs	109,520	Total specified articles	5,694,965

Among other cotton manufactures sold were veils and head shawls, undershirts, padded coverlids, curtains, etc. Colored cloths form the largest proportion of the total, and include especially Oxfords, cheap woven colored goods called Florides and Caroline, cotton trouserings, stripes, diagonals, and similar goods, the bulk of these being cheap goods made of part American and part Indian cotton.

EXPORTS TO TURKEY—CREDIT TERMS AND AGENCIES.

In Turkey the Italians have also been very active, especially in the last few years, and they have driven the American sheetings off the market, and displaced England in some lines. For instance, on cotton flannel, flannelets, barchents, and ordinary sateens the Italians at most places in Turkey have the most of the business. They sell large quantities of mercerized sateens at Smyrna and Beirut. They also do a large business there in linings, in cretonne, and in Oxfords, also a good business in printed cashmeres, printed crepe, Vichy (gingham), damasks, etc.

In Asiatic Turkey flannelets and barchent are used for the long-robed outer garment in winter and prints in summer, the first being supplied by Italy and the latter by England. One of the main specialities of Italy's export trade is printed napped goods, and most of these are split goods that are woven in double widths on the looms and afterwards split down the middle. Barchent is a cloth somewhat similar to flannelet with one hard finished face on the outside and a napped face on the inside. It is preferred in Turkey to the regular flannelet. The bright and fast colors and the appearance of wool in these napped gods attract the native buyer. The Italians have gained the market because their goods are cheaper and, also, because they have studied the native taste, and their designs in this article are better than those of the English or German. The ordinary barchent is 65 to 70 centimeters (25.59 to 27.56 inches) wide and at present is quoted c. i. f. Constantinople at 55 centimes per meter (10.6 cents per 1.09 yards), three months credit, and 5 per cent discount. The Italians have displaced the American sheeting by offering lower-priced Cabots which, in most cases, are made of inferior qualities of cotton.

The long credit offered by the Italians has been of great help to them in gaining such a strong foothold in the Turkish market. They offer longer credits than any other nation on the market, not excepting *the Germans*. Their system of traveling men is well organized,

and at Smyrna and other points the export houses maintain branch establishments, and by means of these they are enabled to quote in many cases "franco domicile," which is a great inducement.

TRADE WITH OTHER COUNTRIES.

In Egypt the Italians have also gained a strong foothold, with their long credits and by catering to the native requirements. The tastes there change constantly, but as the Italian mills get out new designs every season in great profusion they are easily enabled to hold and increase the trade they have gained.

In India also Italy does a good business in cotton manufactures, which is facilitated by direct steamship connections. For the year ended March 31, 1906 (the Indian fiscal year), I found that Italy supplied India with 1,029,465 pounds of yarn, which was more than the contributions of any other country outside of Great Britain. The yarn thus supplied was mostly medium fine numbers—that is, 30s to 50s—and the majority of it colored yarns. For the same period Italy supplied India with cotton cloths to the value of $594,452.

Italy's trade with the Philippines is also growing, the exports thereto during the fiscal year 1906 amounting to $122,829. Their exports to the Philippines include the cotton gauze goods, called betilles, so largely worn as waists by Filipino women, cheap woven colored goods, such as checks and stripes, and some finer goods, such as reps and fine-corded dress goods.

Italy also ships a small quantity of goods to the United States. These include cotton trouserings for the Italian emigrants, and also some fancy goods ornamented with stripes and designs in artificial silk, and some embroidery. The cotton trouserings thus shipped are mostly split goods that are woven 120 centimeters (47.24 inches) wide, and split into about 24-inch widths. They are slightly napped on the wrong side. They are mostly about 14 by 14 ends per quarter inch and are invoiced for 1 to 1.2 francs per meter (19.3 to 23.2 cents per 1.09 yards), less 2 per cent discount.

In an article, published in Italian papers, from the Italian commercial attaché at Washington, he calls the attention of the Italians to American imports of cotton manufactures, especially of lace and embroideries, and says that the cheap labor of Italy, combined with the artistic instinct of the people, should enable them to develop such a business rapidly. Factories of this kind in Italy are few in number at present, and mostly work on overflow orders from Switzerland. The betilles and some other goods shipped from Italy are also made to order for Swiss exporters and shipped direct.

AIDS TO ITALIAN FOREIGN BUSINESS.

Italy's export of cotton goods has been greatly aided by the information published by the Cotton Industrial Association. This association comprises all the larger manufacturers, as well as a good many small ones, and in its monthly paper prints trade items from its correspondents in the various countries and furnishes confidential information direct to the manufacturers. This organization was founded in 1903, which was a year memorable in Italy for an economic crisis, by a group of cotton manufacturers, who were convinced that the industry was nearing a very serious condition and felt the

necessity of bettering it. In promoting the growth of this business it has been very successful. Its officially announced duties are to deal with mutual questions of interest to these who manufacture or deal in cotton; to better the conditions of buying and selling and correct irregularities in contracts and redress troubles; to procure telegraphic news of the principal cotton markets, and publish industrial news both foreign and national; to place at the disposal of the members a place for meetings for leisure and for holding weekly business meetings. The association besides keeps an office at the disposal of the members and provides apparatus for delicate measuring, etc. It procures samples of goods sold by its competitors in foreign countries, and also represents Italy in the International Association of Cotton Manufacturers. It has been of great help to Italian exporters in putting them in touch with foreign buyers.

The Italians have many travelers, and these men, as a rule, are good linguists, which enables them to get in direct touch with the people to whom they are sent. Very often the subagents are natives of the country. The Italians give sample books as required, give longer time than any of their competitors, will take small initial orders, will put on any description of mark, number, or lettering required, and in every way cater to the desires of the buyer. As a rule, the goods they sell are cheap goods, but they sell mainly in markets where cheapness is the main consideration, and in this way they displace the goods of other countries, even if better made.

Some of the mills have also branched out on finer goods and have produced some very artistic designs, but their supply of highly skilled help does not enable them, as yet, to extend this very far. The use of artificial silk for ornamenting such goods is increasing. Most of this is imported from France, but some mills for making artificial silk on the Chardonnet system are now being installed and others planned.

LEADING EXPORT COMPANIES.

One of the most important of the export companies is the Society for Exportation and for the Italian-American Industry. This is a limited liability company, with a capital stock of 14,000,000 lire ($2,702,000), entirely paid up, and has its headquarters at Milan, with branch offices at Buenos Aires, Sao Paulo, Valparaiso, and Lima. The foundations of this company were laid in 1887, and in that year the exportation of cotton manufactures from Italy to South America was instigated, a trade that has since grown into large proportions and is steadily increasing. This company handles the products of a large number of mills, including one of their own at Castrezzato, in Italy, but they have also found it profitable to branch out and erect mills in Argentina and Brazil. They now have at Buenos Aires a cotton mill and underclothing manufactory, employing some 1,000 hands; at San Roque, Salto del Ytu, and Osasco, in Brazil, spinning, weaving, and dyeing establishments employing some 2,000 hands, practically all of the operatives being Italians. This company confines itself mainly to South American trade.

Another important export company is the United Italian Industries for Exportation. This company has a wide range of activity and divides the work of its traveling men into west and east zones

as follows: (1) Mexico, Guatemala, San Salvador, Honduras, Nicaragua, Costa Rico, Panama, the Antilles, Venezuela, Colombia, Ecuador, Peru, Bolivia, Chile, Argentina, Uruguay, Brazil, English and Dutch Guiana; (2) Australia, Tasmania, New Zealand, Java, Malacca, Burma, India, and South Africa. It employs a large number of traveling men, who make frequent trips, and some of whom are stationed permanently in the principal centers, so that the house is always in a position to know the requirements of its clients and the relative demand for merchandise. Other export companies confine themselves mainly to Turkey and the Balkans.

ADVANTAGES OF ITALIAN MANUFACTURERS—FREIGHT RATES.

The total cost of a new mill in Italy is somewhat less than in the United States, but not sufficiently so as to give them any decided advantage in this respect. The wages are lower, but this is, in large part, counterbalanced by the fact that more women are employed, and the operatives in general are less efficient than in England or the United States. The cheapness with which they produce goods on most lines exported is due to the fact that the cost of the raw material is lowered by using mixtures of inferior cottons, that they size heavily wherever possible, and that the manufacture of split goods is general. These usages, added to the fact that the Italians carefully study the requirements of their foreign customers and cater to these requirements, give long time, and have personal representatives on the field, largely account for the increasing export of Italian cottons.

The freight rates from Genoa to some of the points to which Italy ships cotton goods are as follows: To Buenos Aires, 35 lire per cubic meter ($6.76 per 35.316 cubic feet); to Beirut, 4.5 lire per quintal (87 cents per 220.4 pounds); to Piraeus, Smyrna, and Constantinople, 3 lire (57.9 cents) per quintal, which is $5.70 per ton. Italian cotton goods are mainly shipped from Genoa and Venice, with some from Naples.

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SWISS EMBROIDERY AND LACE INDUSTRY

By

W. A. GRAHAM CLARK

Special Agent of the Department of Commerce and Labor

WITH ADDITIONAL REPORTS FROM CONSULAR OFFICERS IN OTHER COUNTRIES

APRIL 14, 1908

Referred to the Committee on Commerce and ordered to be printed with illustrations

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DEPARTMENT OF COMMERCE AND LABOR,
OFFICE OF THE SECRETARY,
Washington, April 8, 1908.

SIR: I have the honor to transmit herewith, in compliance with the act making appropriations for the legislative, executive, and judicial expenses of the Government for the fiscal year ending June 30, 1908, approved February 26, 1907, the report of Special Agent W. A. Graham Clark on the Swiss Embroidery and Lace Industry, with additional reports on embroidery and lace from consular officers in other countries.

Respectfully,

OSCAR S. STRAUS,
Secretary.

The PRESIDENT OF THE SENATE.

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LETTER OF SUBMITTAL.

DEPARTMENT OF COMMERCE AND LABOR,
BUREAU OF MANUFACTURES,
Washington, February 5, 1908.

SIR: I have the honor to submit herewith a report from Special Agent W. A. Graham Clark on the manufacture of cotton goods in Switzerland, and especially cotton laces and embroideries. Methods of manufacture, wages paid, and other matters incidental to cost of production are set forth in the report. The total value of cotton laces and embroideries imported into the United States during the calendar year was $41,443,363, of which amount $16,800,000 was received from Switzerland, which is equal to about 40 per cent of the whole. These figures do not include the value of silk ribbons, laces, and embroideries, aggregating $8,502,694 in the last calendar year, about one-half of which came from Switzerland.

The production of cotton embroideries of every description is an important and progressive industry in the United States, and efforts are being made by American manufacturers to produce fabrics that will take the place of many of those now imported. To assist in promoting this object, the report of Special Agent Clark was prepared.

Lace and embroidery factories in many countries find that their best market is in the United States. For this reason descriptions of how the industry is carried on in Germany, France, Belgium, England, and India will also be of interest. Reports on the trade are therefore added from consular officers, making a rather comprehensive review of the lace and embroidery output from the leading centers of world production.

Respectfully,

JOHN M. CARSON,
Chief of Bureau.

To Hon. OSCAR S. STRAUS,
Secretary of Commerce and Labor.

SWISS EMBROIDERY AND LACE INDUSTRY.

Switzerland, with only 15,469 square miles of land and some 3,500,000 people, had a total foreign trade in 1906 of $855,770,382, made up of $465,739,730 imports and $390,030,652 exports. The imports are mainly foodstuffs and raw materials, while the exports are principally manufactured products. The largest single item in the export list is silk goods, while the second largest is cotton goods, and for 1907 it is probable that cotton goods will rank first.

In 1906 Switzerland imported cotton and cotton manufactures to the value of $21,419,273, clothed its own people, and exported cotton manufactures to the value of $40,928,053. The total Swiss figures for cotton and cotton manufactures show that $32,900,670 came in over the border and that $52,409,450 went out over the border, but of this $11,481,397 represents the value of cotton manufactures that simply passed through the country, and as it did not in any way affect the actual Swiss trade it may be disregarded.

The average value of the raw cotton imported in 1906 was 14.55 cents a pound. The average value of all manufactures of cotton exported reached $1.15 a pound, while the average value of the embroideries and laces alone reached $2.07 a pound. The "raw material" used in Swiss cotton manufacturing includes not only cotton, but yarns, thread, and cloth; but after taking these into consideration Switzerland still holds the record for the greatest difference between the value of cotton imported and cotton exported. Three-fourths of the cotton exports consist of embroidery and laces.

ST. GALL THE EMBROIDERY CENTER OF THE WORLD.

Cotton mills in Switzerland center around Zurich, but have not enjoyed any great measure of prosperity and show no tendency to increase. Embroidery manufacturing, however, which is centered around St. Gall, in eastern Switzerland, has been on a great boom for several years, and its increase has been wonderful. Its exports to the United States alone were in 1906 double those of 1900. Its sales to other countries also show great gains, and St. Gall is now the embroidery center of the world. Just at present the business is experiencing a sharp setback, due to the money crisis in New York, but this

is only temporary. There are in Switzerland some 6,000 power machines and 16,000 hand machines for making embroidery. The great bulk of these are centered around St. Gall, and their production is exported from that point. Around St. Gall are also situated the machine builders, the bleacheries, and the large number of small industries allied with this line of manufacturing.

As yet there are only 616 embroidery machines in the United States, and the St. Gall manufacturers laugh at the idea of America being able to compete with Switzerland in this industry. It seems to be a fact, however, that on cheap handkerchiefs and some other articles, especially novelties that have to be put on the market quickly to meet a sudden demand, the United States is already getting the home market, and in time may be able to compete on broader lines. What has been done in watchmaking may yet be done in embroidery making. In St. Gall itself the industry in a great measure owes its development to the application of American business methods, and the largest and most up-to-date factories are those owned and controlled by Americans.

SWITZERLAND'S IMPORTANT ADVANTAGES.

The main advantages of Switzerland over the United States seem to be, first, the inherited aptitude of the St. Gall people for designing and manufacturing embroideries, which is fostered and aided by the concentration of the business in one place where everybody thinks and dreams about nothing but embroidery; second, facilities for obtaining, at reasonable prices, high-grade yarns and cloths; third, extra fine water for bleaching; fourth, cheaper first cost of machinery and building; fifth, cheap labor.

The first point, in regard to the "embroidery atmosphere," about which much is sometimes made, affects mainly the designers and managers. The stitcher is a skilled worker, but it is work that any intelligent man can soon learn and calls for little headwork. As for the girl overseer, the shuttle filler, the sewing-machine repairer, etc., a large number are Italian girls who have been imported and trained after arrival. In regard to the second point, high-grade muslins and cambrics and fine Egyptian yarns, such as are used on fine embroideries, can be obtained in St. Gall from Zurich or Manchester much cheaper than would be possible in New Jersey. This fact tends for the present to limit the American embroidery factories to the cheaper grades on which the Swiss have not such an advantage in regard to the foundation material. The Swiss bleaching is exceptionably fine, which is due to the very soft water obtained from Lake Constance and other sources, and also, it is claimed, to secret bleaching processes. As no embroidery machinery is made in the United States the machines will cost the American, including freight, duty, and installing,

about twice what they will the Swiss, and the latter also gets his building somewhat cheaper.

LOW WAGES OF OPERATIVES—HAND AND POWER MACHINES.

The greatest advantage of the Swiss manufacturer is undoubtedly his cheaper labor. For instance, the operatives employed on the actual work of embroidering or "stitching," as it is technically known, are the stitcher, the girl overseer (watcher would be a better word), and the shuttle filler. The stitcher in St. Gall will make, say, $8 to $12 a week, in New Jersey $18 to $30; the girl overseer in St. Gall will be paid from 38 to 57 cents a day, in New Jersey from 85 cents to $1.35; the shuttle filler in St. Gall will be paid 38 cents a day, in New Jersey 75 cents. This is quite a difference and is especially important on fine embroideries, where the labor cost is really the controlling factor.

The power machines are referred to as shuttle or schiffli machines. "Schiffli," from the German word for boat, refers to the resemblance in shape to boats of the small shuttles used. In Switzerland there are more hand machines than power machines, but the larger portion of the power machines are grouped in factories, while the hand machines are in the workers' homes and are dependent on overflow orders from the factories. The hand machines, therefore, do not run as continuously as the power machines, and when times of slackness arise, as at present, they are the first to feel the depression. For the last few years there has been work for all and hand-machine workers have made good wages. At present a great number of hand looms are stopped and others are being run at starvation prices. The hand machines used around St. Gall are practically all 4½ yards long, while the bulk of the schiffli machines are 6¾ yards long. There are also a large number of 10-yard schiffli machines. These are the longest single machines, but recently there has been introduced from Plauen, Germany, a double machine—that is, 13½ yards long. This is two 6¾-yard machines coupled together and worked by one pantograph. It is more complicated than the ordinary Swiss single machine, and can not be run quite as fast, but as it makes double the amount of embroidery at a time and only uses one stitcher, one girl overseer, and two shuttle fillers it reduces the cost of stitching and seems to be a success.

EFFECTS OF BUSINESS DEPRESSION.

Swiss embroideries are now being sold in the United States at prices, due to lowered stitch rate, that must tend to seriously affect the American industry in all grades. Most of the big factories themselves are now running short time, three to four days a week, or else six hours a day, and wages have also been reduced. There

have been few cancellations of orders from the United States, but there is no new buying. The manufacturers are very gloomy over the outlook, but the larger mills have their previous big profits to fall back upon and are quietly taking advantage of the slackness to make needed alterations in their plants, to tighten the reins of discipline, and, where possible, to reduce wages and effect other economies.

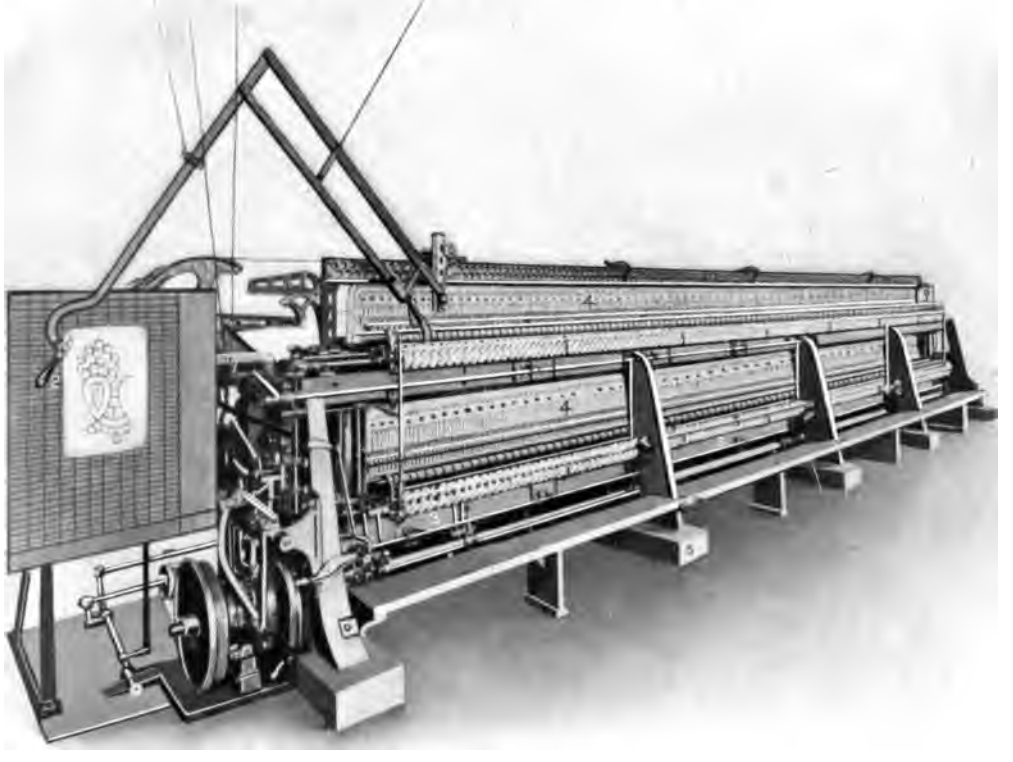
The business was so prosperous in 1904, 1905, 1906, and the first half of 1907 that there was a great increase in the number of machines, and hence in the demand for labor. Wages in consequence rose steadily, and manufacturers claim that they went up out of proportion, but they now find it hard to force them down to the old level. If the present depression continues much longer, wages will weaken rapidly, as there is now not enough work to go round and large numbers are being thrown out of employment.

The "stitch rate" rose correspondingly during the flush years, but with the slackening of demand since October this has dropped, and as wages have not dropped in proportion, the stitch rate is now the naked manufacturing costs. By "stitch rate" is meant the price that will be charged for taking cloth supplied and returning it "stitched"—that is, embroidered. The stitch rate, therefore, should include all strictly manufacturing costs—labor, yarn, power, oil, repairs, rent—and the manufacturer's profit. At present the rate affords no profit to the manufacturer.

ARRANGEMENT OF FACTORIES.

The larger schiffli-machine factories are of brick or stone, usually two stories high, with heavy wood floor, iron columns, double windows, and saw-tooth roof. On the first floor are offices, bobbin-winding room, and one large room for the schiffli machines. On the second floor are inspecting tables, sewing machines, and brushing and shearing machine. Separate from the factory, which is always located in the suburbs or in the country, are the warehouses, which are mostly located in St. Gall. Some of these are very large and three to five stories high. Here are kept samples of goods from all over the world, great rooms full of embroidery patterns all indexed and carefully arranged, and in the basement are stored bales of cloth and yarn. In this building are the main offices, rooms for the designers, and show rooms, while the remainder of the building is devoted to inspecting the finished goods, putting them up in pasteboard boxes and baling in wooden cases, and storerooms.

The industry really divides itself into four processes—stitching, bleaching and finishing, cutting out, and putting up. The larger *firms own* their own warehouse as well as factory, but many confine



SHUTTLE MACHINE WITH PANTOGRAPH, TO EMBROIDER 6¾ YARDS.

themselves to manufacturing, and export firms buy from them, put up the goods, and export. Cutting out is always done outside by home workers, while, with one exception, bleaching is also performed by a separate company. All the larger companies have their own designers, but smaller ones buy their patterns from special designers or have them supplied by the export company for which they are working.

PROCESS OF MANUFACTURE.

The processes straight through are as follows: The cloth and yarn are bought from Zurich or Manchester. The cloth usually comes in lengths of 63 yards, and is cut up into 6¾-yard strips for use on the machine. It is mostly 53 or 55 inches wide. The yarn for embroidery comes ready for use on paper tubes or spools. The schiffli yarn—that is, the yarn to be used in the small shuttles—comes in larger tubes or cones and is rewound on a special automatic machine into the little bobbins, made on a bare spindle, of a size to go into the shuttle, about 1 inch long and one-fourth inch diameter. The material is then stitched. From the schiffli machines the embroidery goes to the inspecting room, where it is pinned on long tables and clippers used to remove all floating threads. It is then run over an inspecting table and all defects marked with blue chalk. It goes to the sewing machines, where all defects are carefully repaired, using blue thread. It is again run over the inspecting machine and further mistakes marked with red chalk and repaired as before. Some classes of goods are then run through a brushing and shearing machine and others brushed and threads clipped by hand. This finishes the manufacturing. Every evening the bleacheries send around wagons or automobiles and collect the day's work for bleaching and starching.

The usual 55-inch goods have three lines of embroidery woven in each width, but there may be any number of strips in a piece. These are sent out to the workers' homes and cut apart with scissors. The goods then go to the warehouse, where they are inspected, rolled on sheets of cardboard, tagged, put up in pasteboard boxes, and cased. They are marked and turned over to the shipping agent.

EMBROIDERY MAKING—MEANING OF TRADE TERMS.

Embroidery is made by "stitching" on a foundation of cloth, and the process on a schiffli machine is similar to that of a sewing machine, but instead of a single needle there is a row of needles, and instead of the cloth being laid horizontally it is fastened vertically. The foundation material is usually cambric or muslin, which is bought in wholesale lengths and cut up into pieces the length of the machine. Two strips are embroidered on each machine at a time, but as the process is exactly similar for each strip I will describe the working

parts and processes used for one. A study of Plate I will make clear the description.

A single strip of cloth is known as a "coupe," while the two strips together are called a "stickete." This coupe, usually 55 inches wide and 6¾ yards long, is fastened to pin hooks on two horizontal rollers in a vertical framework, so that it is stretched tight. Usually three pieces are sewed together side by side, so that they can be unrolled for stitching in succession and the machine stopped for renewing only when all three are finished. In front of each coupe is a sliding bar, carrying a row of ordinary needles, which are clamped to the bar at equal spaces apart. Each needle does exactly the same work as every other needle and the distance between them shows the repeat, usually called the "rapport," of the pattern. This distance is measured in French inches (1 French inch=1.08 English inches), and the 1-inch French spacing is known as the 4/4 rapport.

Similarly, for other spacing the machine is called a 3/4, a 6/4, a 12/4, or a 16/4 machine. The 3/4 is the smallest spacing used. There are only three makes, the 3/4, the 4/4, and the 6/4. The 3/4 machine (6¾ yards long) contains 342 needles to a row, the 4/4 machine contains 228 needles, and the 6/4 machine 156 needles. To make 8/4 work the 4/4 machine is used and every other needle removed, similarly the 6/4 is used for 12/4 work, etc. The greater the separation, the larger may be the design produced, and therefore the less changing of coupes. Stitchers are paid highest for the 3/4 rapport, less for the 4/4, and still less for larger rapports.

AVERAGE STITCH RATES—REPRODUCING THE PATTERN.

The following table shows the yearly and half-yearly range of stitching prices, in centimes (1 centime=about one-fifth of a cent), for staple 4/4 cotton embroideries from January 1, 1902 to 1908, on both schiffli and hand machines:

Year.	Schiffli machine (6¾ yards).		Hand machine (4¼ yards).	
	January.	July.	January.	July.
	Centimes.	*Centimes.*	*Centimes.*	*Centimes.*
1902	37	33	29	29
1903	36	31	29	29
1904	27	27	23	24
1905	29	29	26	32
1906	36	38	31	35
1907	39	39	33	41
1908	34	----------	28	----------

Behind each needle is a small tube, or cone, of embroidery yarn. Each paper cone holds some 500 yards or more of thread, and unless the thread breaks the needle does not have to be rethreaded, but when *a cone* runs out another is put on by the girl overseer without stop-

ping the machine. The needles are all fastened horizontally and point toward the cloth. The frame in which they are fixed slides back and forth, so that the needles can pierce and withdraw from the cloth, but has no other motion.

The needles, when they pierce the cloth, carry through the embroidery threads. Back of the cloth are an equal number of little pointed steel shuttles that carry small bobbins of yarn. These shuttles slide up and down in slightly sloping grooves and are controlled by a bar that moves all alike. Each shuttle carries its yarn, usually called "schiffli yarn," under the embroidery yarn, making a lock stitch similar to that of an ordinary sewing machine. The needles

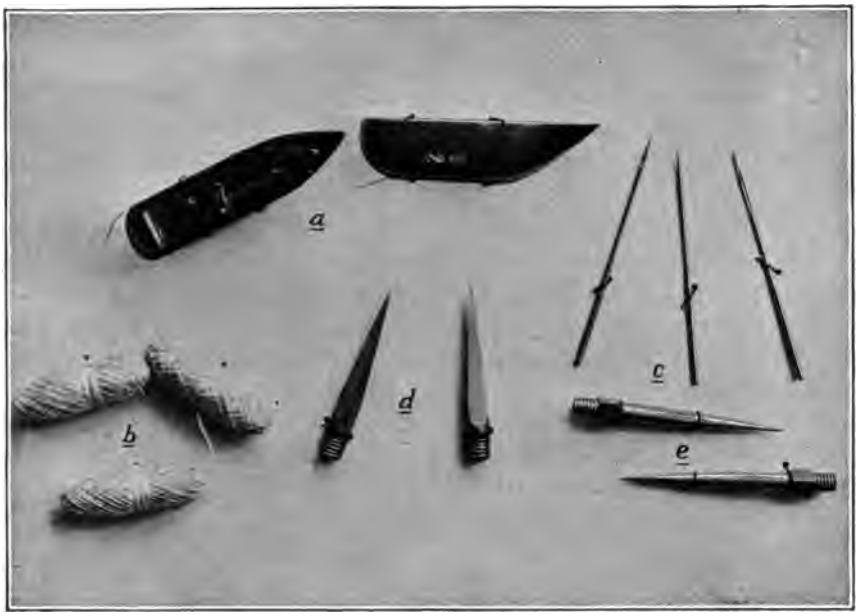


FIG. 1.—Embroidering accessories of the schiffli machine. *a*, shuttles; *b*, schiffli yarn on bobbins; *c*, needles; *d*, borers; *e*, rounders.

moving in and out on a fixed slide, their working position in the cloth can only be controlled by moving the cloth. The cloth is therefore mounted on a movable framework, as stated, and this framework is moved to right or left, or up and down by means of a pantograph.

THE PANTOGRAPH—BORING AND SHAPING THE PERFORATIONS.

The pointer of the pantograph is held by the stitcher, who stands at the left of the frame, and with it he follows the lines of a design tacked on a vertical board. The design is always six times larger than the pattern to be reproduced, and the pantograph arranged for this proportion. It is seen that the schiffli machine, while large and

very ingeniously constructed, is, after all, not very complicated in its operation.

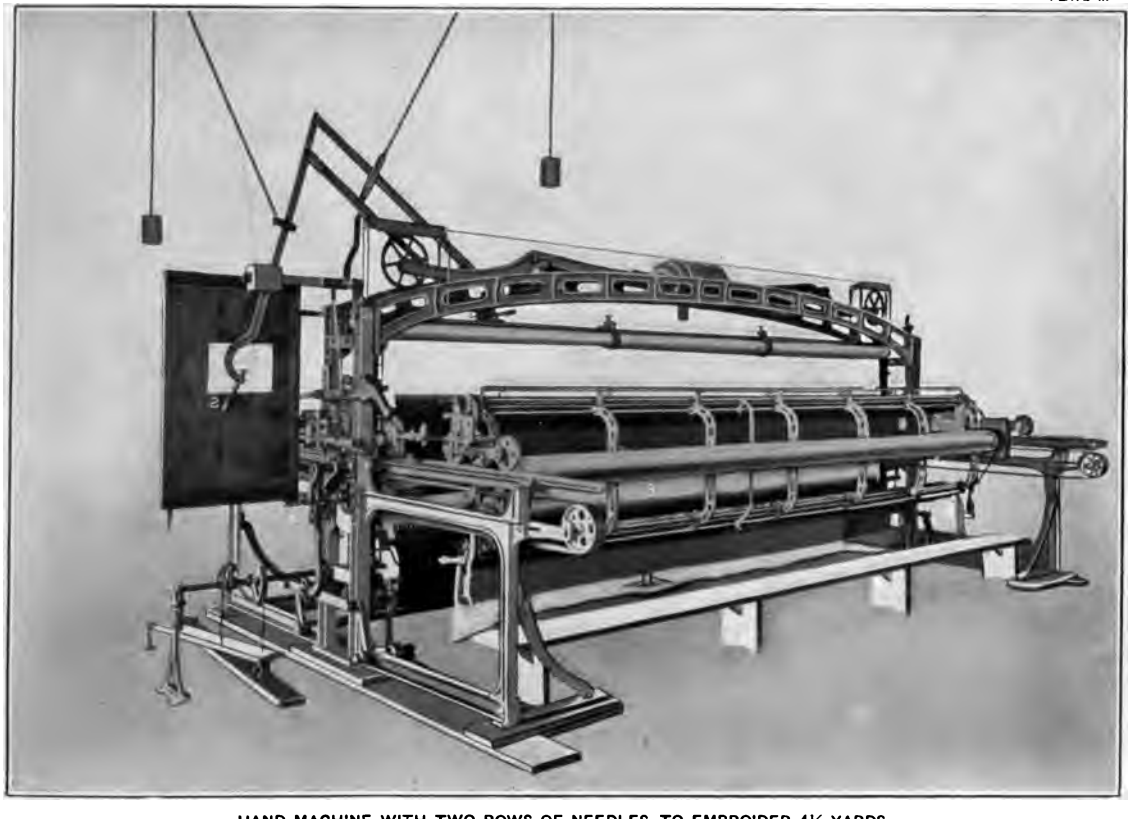
Besides the row of needles there is also usually a row of "borers," of "rounders," and of "festooners." Embroidery work without holes or openings in the cloth is called "blind work." For most embroidery it is necessary to perforate or "bore" the cloth. For this purpose there are used borers having four sharp edges tapering to a point. These are pushed through the cloth by a method similar to that used for the needles, and the holes made the size required. After these edges are embroidered another instrument called the "rounder" is run through to shape up and round out the holes previously made. Most machines also have a festooning apparatus, consisting of a line of hooks on a long bar, to catch the thread of each needle when desired and by giving it a turn to work a loose border around the finished embroidery. In Fig. 1 are shown full-size illustrations of the schiffli shuttles, the schiffli bobbins, needles, borers, and rounders. [Several sets of these accessories are on file in the Bureau of Manufactures.]

OPERATION OF THE HAND MACHINES.

The majority of the schiffli machines are grouped in factories, but owing to the present wide distribution of electric power there is an increasing number of power machines being worked at home. The majority of the cottage machines, however, are hand worked. This machine is still simpler than the schiffli machine and is an exact reproduction of ordinary sewing. The cloth is mounted on a movable framework, and, like the power machine, is controlled by a pantograph. The needles are pointed at both ends and threaded in the middle with short lengths of thread.

On either side of the cloth are movable frames that roll in and out on slides. The needles are held in clips in one movable frame, but when pushed through the cloth are grasped and pulled through by the clips of the other sliding frame. This frame moves out to the length of the thread to tighten it, then moves in and returns the needles through the cloth to the other row of clips, which repeat the process. The distance the slide moves out shortens each time with the decreasing length of the thread. The operator moves the pantograph with his left hand, with his right he operates the crank, and with his feet he works pedals that move the carriages in and out. (See Pl. II.)

The needles have to be frequently rethreaded, and for this purpose there has been invented a very ingenious little machine that takes the needles from a slot, threads each in turn and cuts off the thread to the exact length required, and sticks the needles in a row in a cushion. Those not able to afford this machine have to thread the needles by *hand, which* is a tedious process, especially as the lengths of thread



HAND MACHINE WITH TWO ROWS OF NEEDLES, TO EMBROIDER 4½ YARDS.

have to be all the same to prevent waste. Hand-machine workers are supplied with cloth and patterns by the factory, but have to find their own yarn, power, and other requirements.

CONDITIONS AMONG THE HOME WORKERS.

To prevent advantage being taken of special workers to get work done at low wages, the hand workers, though scattered, have a strong organization that insists on equal rates to all. Some workers, however, agree to buy the machines from the men who furnish them work, and as they have to pay practically all their profit for years on installments they have a miserable existence.

For the last few years there has been a great surplus of work and the home workers have made a very comfortable living, and in some cases large profits. Just at present the money crisis in the United States has affected the industry here so that the factories themselves can not keep running full time, and most of the home workers are being thrown out of employment. The result is that they are glad to get work at any price, and in a good many cases are actually working below cost. Thus, on standard 4/4 goods it is usually considered that, taking into account the cost of yarn and power and the cost of living, a hand-machine worker can not make a profit if the stitch rate is under 33 centimes (centime=about one-fifth cent), but I visited homes where this work is now being done at 23 centimes. The only possible reason for this seems to be that the operative can not find work on his farm during the winter and had rather work on his machine, even at a slight loss, than to get out of touch with the men who supply him with his means of livelihood. In such case the stitcher figures the work of himself and family at nothing, and has to be satisfied if the price paid covers the cost of yarn and power.

CLASSES AND PRICES OF EMBROIDERY CLOTHS.

The foundation materials for embroidery at St. Gall are mostly cambric, muslin, and nainsook. Mr. Kaufmann, United States Treasury agent at St. Gall, gives the yearly proportions as follows: English cambric, about 22,000,000 francs (franc=19.3 cents); Swiss muslin, about 10,000,000 francs; English nainsook, about 4,000,000 francs.

The January 1, 1908, quotations for the standard cloth qualities used for hand-machine and schiffli embroideries are given herewith. All other cloth qualities are according to market values. Prices are for unbleached goods and nominal number of threads (for cambrics per one-fourth inch English; for muslins per one-fourth inch French; 1 French inch=1.08 English inches). The English cloths are bought by the yard and the Swiss cloths by the aune. (One aune=1.286 yards, and 1 yard=0.778 aune; 6¾ yards=5¼ aunes.) A "stickete," which is the amount embroidered by a machine at one time, is there-

fore 10½ aunes (13½ yards) for the schiffli machine and 7 aunes (9 yards) for the hand machine, there being two rows of needles on each.

Cloths.	One piece.		One stickete.	
	Length.	Price.	Length.	Price.
Schiffli cambrics, 53-inch:				
Gray—	*Yards.*	*Francs.*	*Yards.*	*Francs.*
19/18	63	26.50	13½	5.80
22/19	63	27.25	13½	6.06
22/24	63	31.50	13½	7.00
Secoured—				
22/26	63	33.50	13½	7.45
24/26	63	33.50	13½	7.80
Hand-machine cambrics, 53-inch:				
Gray—				
22/18	57	24.50	9	4.08
24/24	57	29.50	9	4.92
Secoured—				
26/24	57	33.00	9	5.50
22/26	57	35.00	9	5.83
26/28	57	37.00	9	6.17
30/30	57	40.00	9	6.66
Swiss muslins:				
47½-inch (120 cm.), 2 f.[a]—	*Aunes.*			
22/18	44	22.00	9	3.66
22/20	44	23.00	9	3.83
22/24	44	24.00	9	4.00
24/24	44	27.00	9	4.50
24/26	44	30.00	9	5.00
26/26	44	33.50	9	5.88
55-inch (140 cm.), 2 f.[b]—				
22/18	48	29.00	13½	6.44
22/20	48	31.00	13½	6.89
22/24	48	34.00	13½	7.55
24/24	48	36.00	13½	8.00
24/26	48	38.00	13½	8.44
26/26	48	40.25	13½	8.95
CHEMICAL LACES.				
For the schiffli machine:	*Meter.*[c]			
Wool cloth, 14/14, 160 cm., up to 100/3 yarn	1	1.00	13½	12.25
Wool cloth, 16/16, 160 cm., for 120/3 yarn	1	1.25	13½	15.65
Silk cloth, 120 cm., for above 120/3 yarn	1	1.80	13½	22.50
For the hand machine:				
Silk cloth, 120 cm	1	1.95	9	17.20

[a] 1 f. one-half franc per piece more. [b] 1 f. three-fourths franc per piece more.
[c] Meter=39.37 inches.

EMBROIDERY YARN—FACTORY METHODS.

The embroidery yarns used runs from 40s to 240s, and is always ply yarn. Formerly the main number was 120s 3 ply, but as 60s 2 ply is the same size and is cheaper, this is now the predominating number. A large portion of the yarn is Egyptian cotton. Of course all these yarns are combed. There is a large consumption of 200s for the fine work and a smaller consumption of 240s, and some even finer, for special work. A good deal of mercerized yarn is used, and there is much embroidery made by threading alternate needles with artificial silk and with Egyptian yarn, which makes the repeat seem double the actual. The factories on fine goods do quite a little manipulating with the machines; such, for instance, as embroidering the center of the figure with silk, rethreading the needles, and embroidering the remainder of the figure with Egyptian cotton. In other cases chem-

ically prepared cloth is used with a backing of cotton cloth, and in places the cotton backing is folded back and the embroidery made on the chemical cloth alone. When finished the chemical cloth disappears and there is shown embroidery with spaces of open-lace effects, etc.

Different embroidery is made for different markets. An instance may be noted in the holes or bores in the cloth. For England quite a little is made with elliptical holes, but for the United States the round hole is the style. A large amount of embroidered cotton net is sent to France, but comparatively little to the United States, etc. As the schiffli yarn (used in the shuttles) does not show, it is usually finer than the embroidery yarn, being cheaper because giving more yards to the pound. This fact alone will usually show whether the embroidery is made on the schiffli or on the hand machine, as the latter uses the same thread on both sides.

BURNT-OUT LACE—REGULATION OF EMBROIDERY VALUES.

Most of the lace made at St. Gall is the kind known as "burnt-out lace," and is made on the regular schiffli embroidery machine. It is made on a foundation of prepared woolen or silk cloth instead of the ordinary cotton cloth. After manufacture this is treated with chemicals and the blue or yellow chemical cloth disappears, leaving the cotton lace uninjured. Some of this material is prepared so that by passing a hot iron over it the animal material disappears, as in the case of the chemical treatment, leaving the cotton.

In regard to the expense of making embroidery ready for sale it will be found that on most embroideries the stitch rate is the largest item, then the cost of the foundation material, and then the bleaching and putting-up costs. In the case of embroideries shipped to the United States these rates are all officially fixed every week by an agent of the United States Treasury stationed at St. Gall, who keeps in active touch with the market. His method is to ascertain the market rates and fix the official values for stitch rate, for bleaching, for cutting out, and for special work. These uniform values have to be figured in the export valuation of every lot of goods.

There then has to be figured in 5 per cent for office and managing expenses—in other words, fixed charges, including salary, insurance, interest, and taxes. To this the exporter has to add at least 8 per cent for profit. For fine goods and specialties the profit thus figured runs from 8 to 50 per cent, but must be put down on the invoice between these limits. There is then added the cost of the pasteboard boxes and the wooden cases, the legalization or consular fee, amounting to $2.50 on each invoice, and then the freight. The insurance in transit is usually paid in the United States.

MANUFACTURING COSTS.

To give a complete idea of this system, and also to show some of the inside manufacturing costs, I will first give a summary of the official table made up by the Treasury agent, then details of some of the costs, and then figure the costs landed at New York of a couple of standard styles of embroidery.

The following are the official rates for stitchwork, etc., that had to be adhered to in their detailed valuations by all exporters shipping embroideries to the United States during the week from December 19 to 26, 1907:

HAND-MACHINE EMBROIDERIES WITH COTTON THREAD.

The hand-machine stitch rates for the different classes of embroidery are as follows:

Rapport.	On cambric, nainsook, or muslin with white or ecru yarn.		On white foundation with colored yarn (one color only).		On colored foundation with white yarn.		On colored foundation with colored yarn (one color only).	
	Coarse.	Medium and fine.	Coarse.	Medium and fine.	Coarse.	Medium and fine.	Coarse.	Medium and fine.
	Centimes.	*Centimes.*	*Centimes.*	*Centimes.*	*Centimes.*	*Centimes.*	*Centimes.*	*Centimes.*
6/4	30	28	36	32	36	36	38	38
5/4	34	32	36	34	40	40	44	44
4/4	34	28	42	36	40	38	44	42
3/4	48	40	52	52	52	52	52	52

Grätli, 4/4, up to 100 stitches, 45 centimes per grätli; up to 200 stitches, 38 centimes; from 200 stitches upward, 34 centimes.

Hand-machine embroideries, large repeats, 8/4, 12/4, 16/4 and larger, each 27 centimes. Irregular shirt waist and other irregularly embroidered material, 3/4 to 24/4, 42 centimes per 100 stitches.

Hand-machine embroideries with application (net or other cloth), 4/4, 6 centimes more than others; 6/4, 8/4, and 12/4, each 4 centimes more than others.

Coarse, up to 150 stitches per needle thread. Colored, 3 centimes more for each color. Glanz yarn, 2 centimes more than others.

For finishing the rates per coupe of 4½ yards on goods up to 55 inches in width are:

Description.	Cost.
	Francs.
Singeing, bleaching, and finishing white goods	91
Singeing, washing, and finishing écru goods	80
For colored foundation with white or colored yarn	91
For white foundation with colored yarn	91

Embroideries with woven laces, tucks, or on double cloth, piqué, etc., 50 per cent more.

Hand-machine laces and trimmings, and all other special articles, including white goods, special articles, glanz-yarn embroidered goods, embroideries on linen, mercerized cloth, and other cloth than cambric, muslin, or jaconet, according to the article.

SCHIFFLI EMBROIDERIES WITH COTTON THREAD.

For the 6¼ yards machine: 3/4, 44 centimes; 4/4, 34 centimes; 6/4, 30 centimes; 8/4, 30 centimes; 12/4, 28 centimes; 16/4 and larger, 29 centimes.

For finishing the rates per coupe up to 6¾ yards on goods up to 55 inches in width are:

Description.	Cost.
	Francs.
Singeing, bleaching, and finishing white goods	1.32
Singeing, washing, and finishing ecru goods	1.15
For colored foundation with white or colored yarn	1.32
For white foundation with colored yarn	1.32

Embroideries with woven laces, tucks, or on double cloth, piqué, etc., 50 per cent more.

Colored, 3 centimes more for each color. Glanz yarn, 2 centimes more.

On cotton net foundation (Orientales), for the 6¾ yards machine: 4/4, 40 centimes; 6/4, 40 centimes; 8/4, 38 centimes; 12/4, 35 centimes.

Bleaching, dyeing, and finishing, 2.50 francs up to 160/1 (400 centimeters), 6¾ yards one coupe.

Cotton chemical laces (without application), for the 6¾ yards machine: 6/4, 28 centimes; 8/4, 29 centimes; 12/4, 28 centimes; 16/4 and larger, 30 centimes.

The stitch rates for cotton chemical laces with net, batiste, or other cloth applications to be valued at 2 centimes more for each repeat. Irregularly embroidered schiffli-machine materials, 5 centimes more per 100 stitches in all repeats.

Silk chemical laces and silk embroideries, same stitch prices as cotton, but the proper prices for silk thread.

Schiffli-machine special articles, including white goods special articles, glanz-yarn or colored embroidered goods, embroideries on linen, mercerized cloth, and other cloth than cambric, muslin, or jaconet, according to the articles.

EMBROIDERED HANDKERCHIEFS.

Embroidered handkerchiefs on cotton and on linen foundation, per frame of 24 pieces, for all four borders:

Description and rapport.	Up to 200 stitches.	Up to 400 stitches.	Up to 700 stitches.	From 700 stitches upward.
White embroideries:	*Centimes.*	*Centimes.*	*Centimes.*	*Centimes.*
6/4	62	54	48	40
4/4	58	52	46	40
Colored embroideries (one or two colors only):				
6/4	75	65	60	48
4/4	75	65	60	48

Hand-machine handkerchiefs irregularly embroidered (without frames): 4/4, up to 300 stitches, 50 centimes; from 300 stitches upward, 45 centimes; 6/4 up to 200 stitches, 50 centimes; from 200 stitches upward, 45 centimes.

Schiffli-machine handkerchiefs: 4/4, $2\times17=34^{er}$, 34 centimes per 100 stitches.

For embroidering handkerchiefs of silk the following rates additional to those for cotton or linen are charged:

Description.	Up to 700 stitches.	From 700 stitches upward.
Cotton embroidered:	*Centimes.*	*Centimes.*
White	8	5
Colored	8	5
Silk embroidered:		
White	15	10
Colored	15	10

Glanz yarn, 2 centimes more.

Sewing together, bleaching, and finishing (excluding cutting out, hemming, and making up): Muslin and nainsook, up to 700 stitches, 25 centimes per dozen; from 700 stitches upward, 31 centimes per dozen; linen, 37 centimes per dozen.

OTHER INCIDENTAL PROCESSES AND PRODUCTS.

For Gegauf and other sewing-machine work the following rates:

Description of work.	Gegauf.	Singer.
	Centimes.	*Centimes.*
Hemming handkerchiefs, per dozen	50	35
Hem in continuous length, per aune	3½	2½
Blind tucks in continuous length, do	1	1

Cutting out (for ordinary scallops): For hand-machine embroideries, 0.6 centime per aune; for schiffli-machine embroideries, 0.7 centime per aune.

Hand and schiffli machine embroideries on double cloth, 3 centimes more per 100 stitches for each repeat.

Hand and schiffli machine ties and scarfs, 3 centimes more per 100 stitches for each repeat.

APPLICATION OF THE STITCH RATE.

The "stitch rate," as previously explained, is the price charged by the manufacturer for stitching, and this is usually the largest item in the cost of the finished embroidery. The wages of the "stitcher," the man who operates the machine, are usually about one-fifth of the stitch rate, but this varies with the different qualities. The stitcher is paid by the hundred or by the thousand stitches in a repeat of the pattern.

Suppose there are 500 stitches in a repeat of 4/4 goods, and that there are three strips of embroidery to be made from each 55-inch width. The stitcher has to run his pantograph pointer over the design for one strip, then move the cloth up one-third its width, trace the design again, move the cloth up another third, and trace again. He is therefore paid for 3 times 500, or 1,500 stitches. As there are two pieces of cloth on a machine at the same time, he really embroiders six strips, but as the lower row of needles simply duplicate the work of the upper this is not considered in fixing his wages. If he is paid 7 centimes a hundred stitches, he makes therefore 7 times 15, or 1.05 francs a stickete. If he makes 12,000 stitches a day, he gets off 8 sticketes and makes 8.40 francs, say $1.62. The schiffli machines can run up to 120 stitches a minute, but this depends on the class of work, and for ordinary goods 80 stitches a minute is a good average.

The embroidery factories usually run ten and one-half hours a day (the variations are from nine to eleven) nominally; that is, they start at 7 o'clock and run to 12, start at 1.30 and run to 7, but there *is a fifteen*-minute rest at 8 and at 4 o'clock, so that the actual time *is not over ten hours. Eighty* stitches a minute for 600 minutes gives

48,000 stitches as the theoretical production, but the actual production varies between 8,000 and 12,000 stitches a day, so that on few goods can the production be figured over 25 per cent of the theoretical.

STITCHERS' WAGE TARIFFS.

Two tariffs, found posted in separate factories, are given, showing the wages paid stitchers for various classes of goods. The first may be taken as the average wages for ordinary standard articles, while the second is from a mill on fine specialties and may be taken as the high-water mark. All prices are in centimes per 1,000 stitches (100 centimes=19.3 cents):

BORE WORK (EMBROIDERIES).

Classification.	Average.		Special.	
	6¾ yards.	10 yards.	6¾ yards.	10 yards.
	Centimes.	*Centimes.*	*Centimes.*	*Centimes.*
4/4 blind	60	70	65	80
4/4 minimum	65	80	70	85
4/4 under 1,000 stitches	70–80	100	100	120
4/4 1,000 to 2,000 stitches	75–80	90	88	105
4/4 2,000 to 3,000 stitches	70–75	85	78	95
6/4 blind	55		60	
6/4 minimum	60		65	
6/4 under 1,000 stitches	80–85		95	
6/4 1,000 to 2,000 stitches	75–80		85	
6/4 2,000 to 3,000 stitches	65–70		75	
Large rapports:				
Minimum	60	70	65	75
Under 1,000 stitches	80	90	93	105
1,000 to 2,000 stitches	75	85	83	95
2,000 to 3,000 stitches	65	75	73	85

Samples of any rapport, 15 to 20 centimes extra.

BURNT GOODS (LACES).

3/4 with or without cord	55		62	
4/4 smooth goods	50–55	60	58	67
6/4, 8/4, 12/4, and larger rapports, smooth goods	50–52	60	57	67
Application to rapport, additional	3	4	5	10
High relief, additional	3	2	5	
Blouse goods:				
4/4, additional	10–12		20	
6/4 and larger rapports, additional	10		15	
Samples, per rapport additional	2		3	

For extraordinary relief, application with two or three cloths, silk goods included, by agreement.

On silk and very fine goods the stitcher is usually paid by the day, especially for work that has to be done very slowly and carefully.

WAGES OF OTHER OPERATIVES—FREIGHT AND INCIDENTAL EXPENSES.

In regard to other operatives, the girl overseer, who walks up and down the front of the machine to see that the needles are stitching correctly, keeps the needles threaded, corrects any slight defects found, etc., is usually paid 2½ or 3 francs a day. The shuttle filler usually gets 2 francs a day. She keeps the schiffli shuttles supplied with the little 1-inch bobbins of yarn, and for ordinary work it takes a shuttle filler to a machine. The girls who inspect the cloth, those who repair

defects with the sewing machine, and others get also from 2 to 3 francs. The superintendent of an 80-machine factory on fine goods that I visited got 400 francs a month, but 250 francs a month is about the average. The highest paid men in the business are the managers of the company and the designers, who are paid wages more nearly corresponding to what similar men would get in the United States.

The cost of bleaching and of cutting out has been given in the Treasury statement.

In freight rates there is a slight difference according as shipped by Hamburg, Southampton, or other points. The present rate by way of Hamburg is 13½ francs per 100 kilos ($2.61 per 220.46 pounds), and the insurance on goods in transit is one-fifth of 1 per cent. The pasteboard boxes in which the embroideries are put up cost from 30 to 50 centimes each, while the average wooden case containing, say, some 225 kilos costs 16½ francs, or $3.13, each.

ELECTRIC-POWER RATES IN ST. GALL.

The city of St. Gall supplies electric power to factories and to home workers, and there are also outside companies, who get their power from waterfalls. As this saves a great deal in the first cost, all of the new mills use electric power, and most of the old ones have taken out their old steam and gas engines for this source of supply. Last year, owing to an unusually dry season, there was not enough water for the electric plants, and some of the mills that had changed over had to make hurried alterations and fall back on their old source of supply and those that had none had to run short time. Some of the mills for this reason still kept their old engines as an auxiliary in case of trouble. The following schedule of yearly rates for electric power, furnished me by the city of St. Gall, has been reduced to United States values:

Horsepower.	Rate.	Horsepower.	Rate.
One-half	$48.25	Five	$308.90
One	81.06	Six	365.93
Two	144.75	Ten	579.00
Three	202.65	Twenty	1,003.60
Four	252.06	Forty	1,678.40

All power is supplied on a yearly contract. The rates given are for 1908, being the new rates just made. They are much higher than the 1907 rates, when the rate for 1 horsepower was $62.73, and others in proportion. The 6¾ schiffli machine requires about one-fifth horsepower per machine.

EXPERIMENTAL BLEACHING IN THE UNITED STATES.

To show the proportions of the component costs in the manufacture of embroideries I have worked out the following details in regard to two standard makes of 4/4 embroidery, one having 385 stitches and

the other 1,079 stitches. [The original samples are on file in the Bureau of Manufactures. For illustration of them see Figs. 2 and 4.]

The figures, of course, are for bleached goods, as few goods are shipped in the gray to the United States or elsewhere. Those that are so shipped are either goods to be used in the gray, of which there is a small amount, or else, as occasionally happened last year, goods that

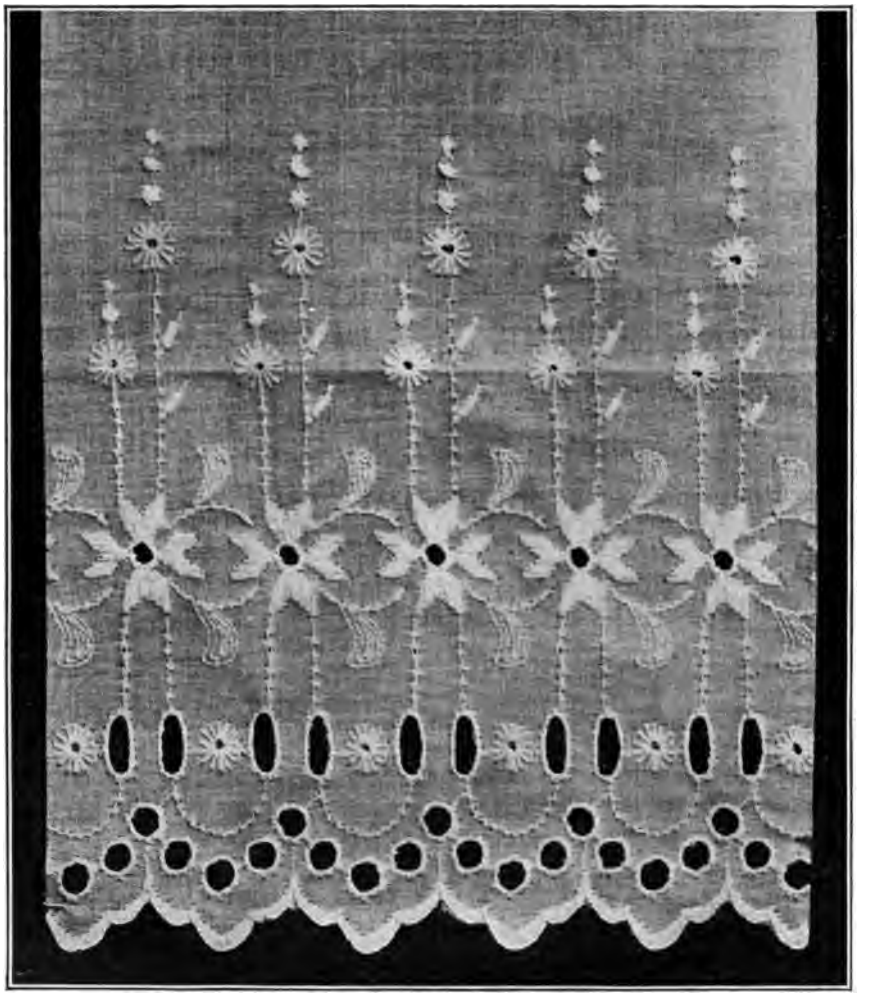


FIG. 2.—4/4 Rapport embroidery, 385 stitches in a repeat. Stickete, 13½ yards. 13½ yards of cambric weighed 1.82 pounds, the finished embroidery 3.36 pounds.

could not be finished in time, because the bleacheries were so rushed, and were therefore sent over to be finished in the United States so as to be delivered on contract time.

One manufacturer informed me that his firm had tried the experiment of having goods bleached in the United States. Shipping in the gray, the goods not being put up in cardboard, saved in freight, and

the value of the gray goods being much lower than the bleached and finished goods, there was quite a saving in duty. Also, the cardboard and boxes were cheaper in the United States and the cost of putting up not materially different. His firm figured that, on the whole, it was slightly cheaper to ship in the gray and bleach and make up in the United States than to ship the bleached goods, but that on account of the American bleaching not being as pure white as the Swiss bleaching and because they have their own warehouse, etc., for this

FIG. 3.—Diagram showing cost distribution of embroidery shown in Fig. 2.

purpose already at St. Gall, they have never followed up the results obtained.

COST DISTRIBUTION.

The detailed itemization of the cost of the 4/4 rapport embroidery, 385 stitches in a repeat, shown in Fig. 2, is as follows:

	Francs.
Cloth, two 6¾-yard pieces of 53-inch cambric, 19/18 construction	5.89
Stitching, etc., 385 stitches, at 34 centimes, 3 strips	3.93
Bleaching and finishing	2.64
Cutting out, 10½ aunes, at 0.7 centime an aune, 3 strips	.21
Making up, carding paper, etc	.36
Expenses, 5 per cent	.55
Profit, 8 per cent	.84
Boxes, case, etc	.20
Legalization ($2.50=13 francs for, say, 10 cases)	.01
Freight and insurance (freight at 13½ francs per 100 kilos; insurance at 0.2 per cent)	.24
Total	14.87

This would be price f. o. b. New York. To this has to be added 60 per cent duty and then about 75 per cent to cover all expenses between

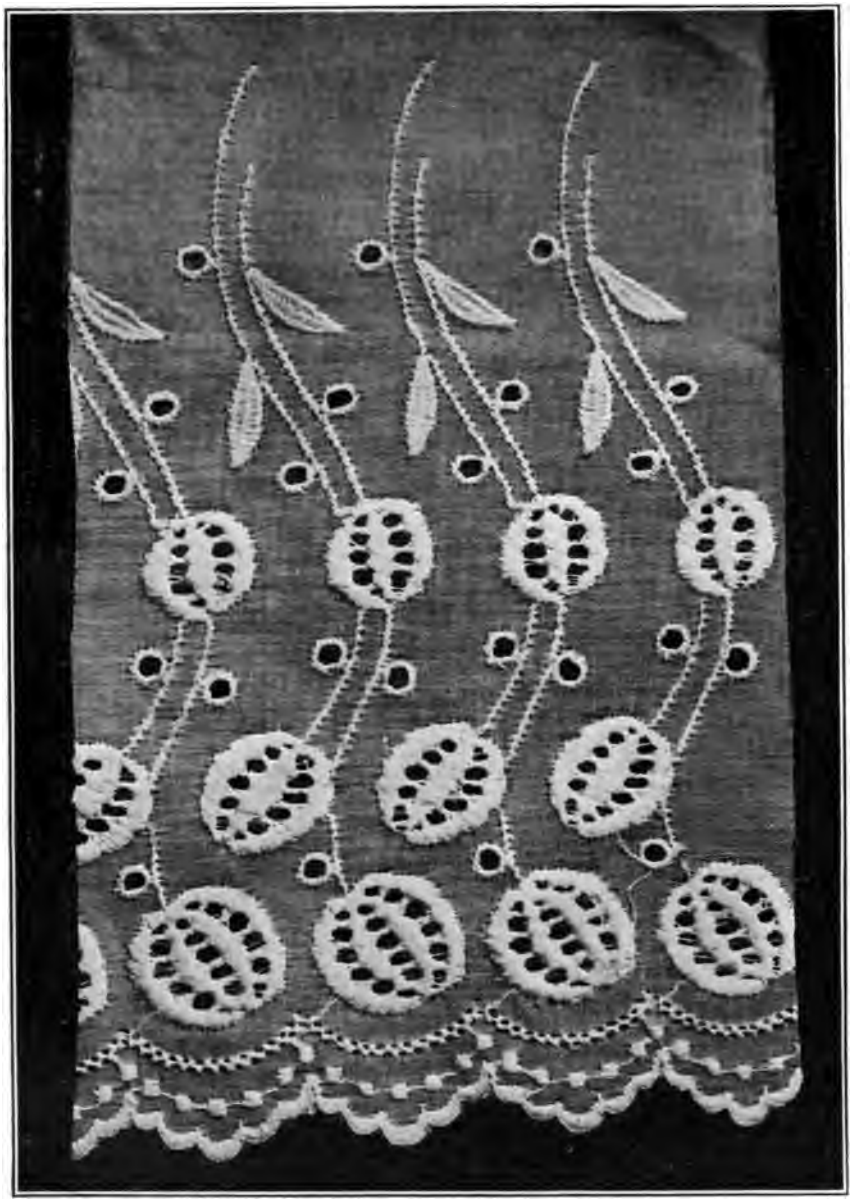


FIG. 4.—Plattstich embroidery, 4/4 rapport, 1,079 stitches in a repeat. Stickete, 13½ yards. 13½ yards of muslin weighed 1.67 pounds, the finished embroidery 3.81 pounds. 130 sticketes, or 5,265 yards of single strips, put up in each case.

the custom-house and the customer, including landing charges, importer's costs, etc., and retailer's profit, so that the retail price in New

York would be 41½ francs, or, say, $8. As each stickete consists of six strips 17 inches wide and 6¾ yards long, this is 40½ yards for $8, or, say, 20 cents a yard.

The stitch rate in the above case, not including the manufacturing profit, was made up as follows: Stitcher, 8 centimes; overseer, 3 centimes; shuttle filler, 2 centimes; repairing, etc., 2 centimes; yarn, 15 centimes; power, oil, and other expenses, 4 centimes; total, 34 centimes.

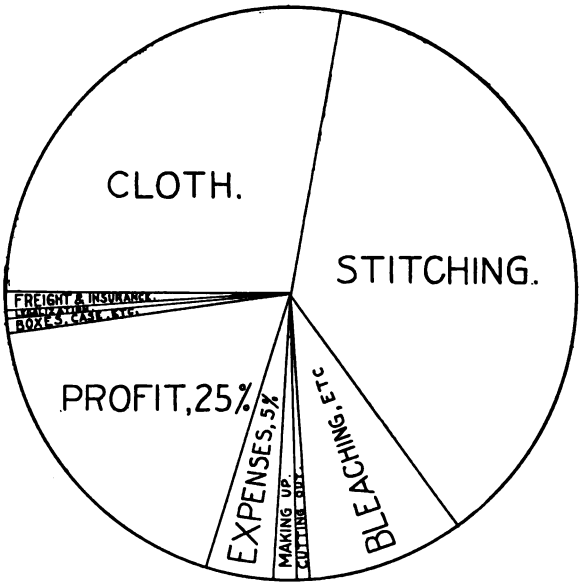


FIG. 5.—Diagram showing cost distribution of embroidery shown in Fig. 4.

The items of cost of the Plattstich embroidery shown in Fig. 4 are as follows:

	Francs.
Cloth, two 6¾-yard pieces of 55-inch muslin, 22/24 construction	8.00
Stitching, etc., 1,079 stitches, at 34 centimes, 3 strips	11.00
Bleaching, etc	2.64
Cutting out, 10½ aunes, at 0.7 centime an aune, 3 strips	.21
Making up, carding paper, etc	.36
Expenses, 5 per cent	1.10
Profit, 25 per cent	5.28
Boxes, case, etc	.20
Legalization ($2.50= 13 francs for, say, 10-case invoice)	.01
Freight and insurance (freight at 13½ francs per 100 kilos; insurance at 0.2 per cent)	.29
Total	29.09

This would be the price f. o. b. New York. To this has to be added the 60 per cent duty and, say, 100 per cent for intermediate costs, *including landing charges*, importer's costs, etc., and retailer's profit, *so that the retail price in New York* would be about 93 francs, or, say

$18. As each stickete (the amount embroidered on a machine at one time) consists of two 6¾-yard lengths, each containing three single strips, this makes the price per yard of each strip about 45 cents.

The history of this particular piece of embroidery might be summed up as follows:

	Per pound.
Raw cotton sold by American farmer at	$0.12
Muslin sold by Manchester manufacturer at	.92
Embroidery sold by St. Gall exporter at	1.48
Embroidery bought by American farmer's wife at	4.75

ANALYSIS OF THE LAKE CONSTANCE WATER.

One of the main advantages of the Swiss over the American embroideries has always been claimed to be the exceptional whiteness of its bleaching. Most of the water used for bleaching in the St. Gall district is obtained from Lake Constance, and to test their claim in this respect I had an analysis made by the best expert in this line at St. Gall and submit a translation of the same herewith:

[Expert analysis of the Lake Constance water, by E. Schaufelberger, St. Gall.]

Water is judged, first, according to its appearance, and, second, according to its chemical properties. In appearance it should be colorless, clear, and above suspicion. As to its inner properties, it should be not too hard, or at least should possess only so-called temporary and not permanent hardness.

The average analysis of the water of Lake Constance, with a comparison of other Swiss waters, is as follows:

[Amounts stated in milligrams to liter.]

Constituents.	Lake Constance water.				Spring water.[a]	River water.	Pond water.
	Sample 1.	Sample 2.	Sample 3.	Sample 4.			
Carbonate of lime	98.3	126.0	126.5	.....	187.2	108.8	108.0
Carbonate of magnesia	16.5	.....	.....	.....	24.0	18.2	16.0
Sulphate of lime	41.6	14.4	15.7	Trace.	.....	.....	.....
Chloride of soda	2.7	.....	.....	.....	.....	.....	.....
Silicic acid	3.2	.....	.....	.....	.....	.....	.....
Argillaceous earths	Trace.	.....	.....	.....	.....	.....	.....
Oxide of iron	Trace.	.....	.....	Trace.	.....	.....	.....
Potash	Trace.	.....	.....	.....	.....	.....	.....
Dry residuum	186.0	174.0	176.0	197.0	464.0	290.8	284.8
Calcined residuum	173.2	148.0	152.0	186.0	374.0	226.8	213.2
Total carbonic acid	126.1	.....	.....	.....	171.0	111.0	88.0
Fixed and one-half fixed carbonic acid	120.4	.....	.....	.....	.....	.....	.....
Free carbonic acid	5.7	.....	.....	.....	.....	.....	.....

DEGREES OF HARDNESS SHOWN BY ANALYSES.

	°*French.*[b]	°*French.*	°*French.*	°*French.*			
Total hardness	15.7	15.0	15.0	18.0	.....	.....	.....
Temporary hardness	11.5	12.5	12.5	12.5	.....	.....	.....
Permanent hardness (gypsum or sulphate of lime)	4.2	2.5	2.5	5.5	.....	.....	.....

[a] Pure, very hard.

[b] 1° French=1 part carbonate of lime in 100,000 parts water. Scale: 1° German=1.79° French=1.25° English hardness.

The water of Lake Constance is therefore comparatively pure, and may even be used for drinking (especially if filtered). The properties of the water make it excellent for bleaching purposes.

By dividing the calcined residuum by 10 the degree of total hardness may be approximately ascertained and a comparative table may be made of the various analyses.

Bleaching can be effected with hard water if an arrangement exists for purifying the water. The Clark method [a] is a good and cheap one for this purpose. It is the best for depositing the carbonate of lime, which can then be removed, and the cost of it is small.

Purified water is good for use in steam boilers, as it enables considerable saving to be made in soap, soda, acids, etc.

CONSULAR REPORT.

[By CONSUL-GENERAL S. C. MCFARLAND, ST. GALL.]

St. Gall is the clearing house of a large manufacturing district embracing some four Cantons. The actual producing processes are carried on in numerous and small towns, in villages, and almost universally in the homes of the inhabitants. The highest in altitude of any community in the civilized world, its surrounding hills practically capable of producing grass only, its people in the last century were impelled to creative industry, and were assisted by its location on the old route between Italy, Canton Grisons, and south Germany. At first all attention was given to flax products, and the looms to be found in almost every house soon gave it a local reputation in linens. The introduction of cotton rapidly changed all this, and the house workers in flax developed into expert producers of handmade laces and embroideries, for which the district of Appenzell is still famous. The Rittmayer embroidery machine was invented near St. Gall about 1830, but it was not until 1886 that the first half dozen machines were in operation to compete with hand machines. The growth was then rapid, new improvements being added by various manufacturers, until the number now in operation in the embroidery district—the Cantons of St. Gall, Appenzell, Thurgau, Zurich, and of the Vorarlberg, for which St. Gall is the market and clearing house—is approximately 6,000. These are all immense new machines, whose use dates back not further than 1894, machines in prior use having been necessarily relegated to the scrap heap. Of hand machines, which have not materially changed in character, there are some 16,000 in operation, according to Mr. Karl Kaufmann, the American treasury agent at St. Gall.

DEVELOPMENT OF AMERICAN AND SWISS EMBROIDERY INDUSTRIES.

It is here interesting to summarize the American embroidery development. From 1890 to 1906 the number of embroidery plants estab-

[a] A full description of this method may be found on page 410 of "Water Supply," by Prof. W. P. Mason, published by John Wiley & Sons, New York City.—*B. of M.*

lished in the United States and the number of machines therein were as follows:

State.	Establishments.	Machines.	State.	Establishments.	Machines.
New York	62	291	Missouri	1	4
New Jersey	60	233	Illinois	4	19
Pennsylvania	11	29	California	1	1
Connecticut	3	36			
Maryland	1	3	Total	143	616

Including four machines sent to Canada, Switzerland furnished 259 of these machines and Saxony 361, a total of 620.

The exportation of Swiss machines to the United States still continues; but manufacture there can reach development only through trials identical to those experienced at St. Gall. The low wage rates here laid the foundation of the industry; and with it, aided by abundance of pure water, grew up the accessories of bleaching, dyeing, finishing, machine and tool production, and the almost numberless subindustries whose very existence is dependent upon the mother industry. The blending of community interests in practically one product—such as, for instance, embroideries at St. Gall; silk cloth at Zurich; silk ribbons at Basle; gold watches at Geneva; common watches, in all possible grades, at Neuchatel and Solothurn; locomotive and heavy machinery at Winterthur; electrical machinery at Oerlikon and Baden; embroidery machinery at Arbon; knitted goods in Aargau, and chocolate and cheese in their specific cantons—may not be the wisest economic procedure. Diversification may offer the advantage of modifying the disasters of inevitable hard times in one industry, but the application in one line of all thought and all effort, generation after generation, results in a rare perfection and economy of product. This is the chief secret of St. Gall embroideries.

LABOR, WAGES, AND EXPORTS.

Mr. Kaufmann places the number of office embroidery employees—designers, enlargers, and clerks—at 7,000 in St. Gall, and of direct embroidery work people of both sexes in the district at 80,000. In allied industries, outside of dairy and purely mercantile pursuits, may be aligned almost the entire balance of the population. Factory wages, small from an American standpoint, are perhaps the highest in Europe, as is also the standard of living. Foremen receive from $1.20 to $1.80 a day, expert stitchers from 90 cents to $1.90, ironers from 90 cents to $1, and less expert workers down to 60 cents. Salaries of managing experts are large, even from an American salary standpoint. Three-fourths of the factory and house workers are females.

The number of manufacturers and exporters having warehouses or headquarters in St. Gall is about 250, and the total value of ex-

ports of embroideries and laces alone from the district in 1906 was $30,593,474, distributed as follows:

Whither exported.	Value.	Whither exported.	Value.
United States	$14,877,148	Canada	$857,465
Great Britain	6,279,184	Central America	612,543
Germany	2,348,628	Argentina	707,745
France	1,667,218	Australia	220,586
Italy	634,680	Holland	208,786
Belgium	501,574	British India—Asia	484,056
Spain	568,840		
Austria	625,021	Total	30,593,474

The largest single St. Gall concern exports annually about $2,000,000, chiefly to the United States, while several fall only a small sum below this. The average concern, however, exports about $200,000. There are many engaged in business on a small scale—collectors of house-industry products—whose aggregates run only from $2,000 to $10,000.

GREAT INCREASE IN EXPORTS TO THE UNITED STATES.

The exports of laces and embroideries to the United States given in the foregoing general statement throw some light on that St. Gall industry, but nothing illuminates it like the record of total exports to the United States for specific years since 1864, as follows: 1864, $67,989; 1870, $1,343,744; 1880, $4,351,995; 1890, $7,247,952; 1900, $7,389,924; 1906, $15,981,168.

The following statement shows the value of declared exports from the consular district of St. Gall to the United States during the three months ended September 30, 1907:

Article.	Value.	Article.	Value.
Appenzell goods, hand embroideries	$3,365	Job of handkerchiefs	$13,805
Bolting cloth, silk	26,108	Kilo embroideries (imperfections):	
Cheese	97,183	Hand machine	12,929
Chocolate	2,893	Schiffli machine	29,962
Church articles	4,287	Machines and parts thereof	11,741
Cotton embroideries:		Plain cotton cloth:	
Hand machine	784,982	Muslin, nainsook, etc	28,569
Schiffli machine	1,873,695	Typewriting cloth	10,008
Cotton laces and trimmings:		Ribbons	1,176
Hand machine	35,027	Silk laces and trimmings:	
Schiffli machine	173,272	Hand machine	91,687
Collars, blouses, robes, ties, and other embroidered cotton fancy articles	102,204	Schiffli machine	21,226
Curtains	300,342	Tidies, pillow shams, scarfs, and other tamboured articles, except curtains	41,230
Figured and dotted Swisses:		Yarn	25,753
Woven	32,167	Miscellaneous articles	16,525
Embroidered	9,939		
Gegauf, tucks, and other sewed articles	4,691	Total	4,112,753
Handkerchiefs	271,947	Total same period in 1906	3,919,763
Job of hand-machine embroideries	19,318	Increase	192,990
Job of Schiffli-machine embroideries	67,222		

MARKET AFFECTED BY AMERICAN FINANCIAL DISTURBANCE.

The recent American financial disturbance might have been presumed, had its occurrence been foreseen, to have produced much more serious local consequences than have as yet resulted. Of the total Swiss embroidery exports of $30,593,474 in 1906, the United States took $14,877,148, Great Britain coming next with $6,279,184, and the balance being distributed throughout the world. During 1907 ex-

portations not only increased, but the United States has taken a greater proportionate share. As the industry not only relies chiefly upon the American market, but with respect to many of its concerns is American in fact, the sudden stoppage of business upon the other side, coupled with fully 33⅓ per cent of cabled cancellations of orders booked and largely in hand, might well have been disastrous. That conditions were somewhat unhealthy did not tend to help the situation.

In 1864 embroidery exports to the United States were $67,550 and in 1897 they had risen to $5,734,029. In 1906 they had jumped to $14,877,148, and for 1907 (December estimated) will amount to over $18,000,000. These figures presume a boom growth, which exactly describes conditions when the American financial crisis upset all plans and threw the market into a state of almost hysterical uncertainty. The increase in October had been $749,853 as compared with October, 1906, the month's total figures being $1,822,560, breaking all records. It had been figured, upon the basis of orders received and in prospect, that November and December increases would show a similar gain over the figures for the corresponding months of last year, and that until June, 1908, at least, nothing was in sight to disturb the phenomenal growth of business so far as the United States was concerned.

The figures given for 1907 (December estimated) need explanation in view of my former reports fixing the probable total at between $19,000,000 and $20,000,000. As a basis for previous figures I took my predecessor's annual declared export return for 1906, figuring therefrom current gains by months. It recently became apparent that our aggregate of monthly totals would not balance with these figures. My predecessor's figures for 1906 were therefore gone over month by month, resulting in the discovery that, instead of a total business of $15,981,168, as he reported, the actual figures should have been $14,879,058, a difference of $1,102,100, which exactly explains my previous miscalculations.

EXCESSIVE MANUFACTURING ACTIVITY.

Old concerns were increasing their plants as rapidly as machinery could be had. New concerns, large and small, financiered by local capitalists and backed by local banks, were springing into existence all through the embroidery district of East Switzerland and the Voral Mountains. Local machinery manufacturers were pushing production to the utmost limit, one concern alone having orders booked in October for 550 machines, and turning them out at the rate of 90 per month; and, the local supply not being equal to the demand, machines were being imported from Saxony in large quantities. Factories, unable to keep pace with orders for embroideries, competed with each other in bidding for "house work"—letting out their orders to small concerns and families operating one or more machines in a fashion peculiar to this district.

Technical papers and expert observers had, entirely apart from any anticipated disturbance such as came so suddenly from the United States, uttered conservative warnings, pointing to the unsatisfactory European markets, especially in Germany, to the impending Presidential election year in the United States, and to strained credits at home, so many of the new enterprises operating almost entirely upon bank credits. Nothing, however, availed to stop the rush until the American crisis, as it is here called, effected a sudden halt. Not a single failure has, however, so far occurred, although it is frankly admitted that many large and otherwise solvent concerns have been in straits for cash, to say nothing of the smaller and newer enterprises.

BUSINESS RECOVERY PROSPECTS.

Bank accommodations ceased, bank rates advanced sharply, no money was to be had for current American shipments, and altogether the situation was discouraging. It has been met philosophically and a much more optimistic feeling prevails now than four weeks ago. A consensus of opinion of leading manufacturers, many of them well conversant with American conditions, agrees in predicting an early partial and an eventual full recovery, based upon the excellent industrial as distinguished from the financial conditions in the United States.

Some canceled orders have, indeed, already been replaced, and it is confidently predicted that a normal and perhaps healthier business will soon follow. The effect upon prices is bound to be severe, and upon miscellaneous and house labor still more drastic. Ultimate effects are, however, purely speculative at this time.

Switzerland, as distinguished, for instance, from Austria and Germany, has no official chambers of commerce; but, similarly to the American method in such things, there are maintained in every trade center unofficial associations of leading business men for cooperative purposes. The St. Gall association—and the fact is perhaps the best illustration of the seriousness of the local situation—on December 4 took the unusual course of publishing the following announcement:

> In its report for 1906, entitled "Commerce and industry," this committee predicted a set-back to the high point reached by machine embroideries, resulting in a change of white embroidery fashions. This expected set-back came sooner than anticipated—not through a change of fashions, but through a sudden and unexpected financial crisis in the United States. The crisis did not fail to have its effect upon the embroidery market, but it can be safely said that the solidity of the American firms which are chiefly consumers of our goods is beyond the question, and that the demand will continue. America has also just put under roof rich crops of cotton and grain, which she can dispose of at good prices. This presents the question: What shall we do? Nothing, but to keep cool and give the market time to return to its normal condition; to generally curtail production of staples until present stocks are safely placed, and, *above all*, not to circulate any alarming rumors or reports.

FRANCE.

[By Consul James B. Milner, Calais.]

The preeminence of the French city of Calais as a lace center is chiefly due to the cleverness of its lace makers. It should be borne in mind that a lace loom, although of the most intricate mechanism, is still only an instrument, the production from which depends entirely upon the ability and intelligence of its operator. Calais has ambitious citizens, among whom exists a spirit of rivalry and a desire to excel, not only financially, but in art. The greater part of the French people here believe in having something which they can call their own and are not disposed to let one man run everything. Their mental make up and manner of working render monopolies of an industry of this kind impossible. This characteristic alone, perhaps, has contributed more to the success of Calais in recent years than any other, since lace to be beautiful must receive in its fabrication the greatest care and attention, which is too often overlooked in a large concern. Calais has a population of 70,000, about 60,000 of whom gain their existence from lace making, yet very large concerns do not exist here. On the contrary, there are 650 small factories in Calais, in many of which the wife adds her intelligence to that of the husband in making the factory a success. Machine-made lace is almost the sole industry of Calais.

LACE SUCCESSFULLY PRODUCED IN AMERICA—TECHNICAL SCHOOLS.

That a lace machine can be operated successfully in the United States is no longer an open question. It has been tried by curtain manufacturers in Philadelphia and other cities, and also in the manufacture of lace in New York, Providence, Pawtucket, Paterson, and Zion City. Already the lace industry is of great importance in the United States. As proof of this the following statistics from a French source may be cited: For the fiscal year ended June 30, 1906, the United States consumed $40,400,000 worth of lace goods, of which the home supply was valued at $7,200,000; that from France at $10,300,000; from Switzerland, $11,200,000; from Germany, $6,000,000; and from Great Britain, $5,700,000. It thus appears that the United States made for itself 17.8 per cent of the lace consumed therein in 1906. Of the French shipments, $7,420,715 worth, or 72 per cent, was from Calais. In this estimate account is only taken of the lace goods declared for shipment at this consulate, no

account being taken of some large houses which declared their shipments at other consulates. Should these be taken into account it would show that Calais, Caudry, and St. Quentin furnished at least 80 per cent of the lace goods shipped during the above year from France to the United States.

In Calais there is a technical school, under the supervision of Abbé Piedfort, which has for its object the training of young boys in the technics of the lace industry. This school embraces sketching designs, designing (i. e., reducing the sketch to the mechanism of the loom), lace making, "metteur en œuvre," and "regleur." The two latter are professions in the lace manufacture for which no English names have as yet been employed. The "metteur en œuvre" and "regleurs" may be said to be the mechanical doctors of the loom.

NUMBER EMPLOYED AND VALUE OF OUTPUT.

In Calais, Caudry, and St. Quentin there are in all about 1,040 factories. Their many looms turn out enormous quantities of lace, which, after it is dyed, has to be clipped of its surplus threads. The output of the largest factory amounts to about $500,000 annually. It is difficult to give the output of an average factory, as they have from 1 to 60 looms.

As to the number of inhabitants who live wholly from the making of lace in northern France only an approximate opinion can be given, but it can be conservatively estimated at 100,000. The clipping of the surplus threads employs, irregularly, in the villages within 50 miles of Calais and surrounding Caudry and St. Quentin, another 100,000. Of course, as to these no accurate statistics can be had, but one visiting the many villages about Calais can see everywhere in every household women and girls engaged in clipping lace. In estimating the population engaged in and sustained by this industry no account is taken of the spinners of the threads used in the fabrication of lace. The spinning industry is enormous at Lille. Many fortunes have been made there spinning the thread for Calais, Caudry, and St. Quentin. Much thread also is imported from England. Merchants have, even in Calais, grown rich in furnishing lace manufacturers with thread.

The approximate output of the lace industry in Calais, Caudry, and St. Quentin is about $20,000,000. The industry in the last three years has increased more than 50 per cent in Calais. Everywhere are to be seen proofs of this prosperity in the way of new buildings, new residences, automobiles, etc.

INCREASED EXPORTS DUE TO LACE INDUSTRY.

In a previous report relative to the machine-made lace industry of this city, in which a comparison was made between the exports of Calais and Nottingham, England, to the United States, a mistake

was made which did injustice to both Nottingham and Calais as to the amount of exports of these two industrial centers to our country. The exact statistics are therefore given herewith. In the following statement the figures for the fiscal years ended June 30 embrace not only lace, but all kinds of exports from these two cities:

	1906.	1907.	Total for both years.
Calais	$7,430,714	$9,318,991	$16,749,705
Nottingham	6,279,614	7,510,255	13,789,869
Difference in favor of Calais	1,151,100	1,808,736	2,959,836

It can be seen that the total exports of Calais for the last two fiscal years to the United States exceeds the total exports of Nottingham for the same period, substantially, $3,000,000. This showing in favor of Calais is due to the fact that in the past five years the lace industry has increased at least 50 per cent in its productive capacity and also to the favor with which Calais laces have been received in the American market.

ENGLAND.

[By Consul F. W. Mahin, Nottingham.]

Nottingham is preeminent in the production of machine lace, for several reasons—first, the invention of the stocking frame in this county; second, the town was always noted for its mechanical skill, and a proverb runs that "The little smith of Nottingham can do the work no other man can;" third, the inventors and improvers of lace machinery were Nottingham men; fourth, the damp climate. Cotton-cloth making was first started in Nottingham, but was moved to Lancashire because the climate was not damp enough here, though right for lace making.

The machines now in use in the Nottingham lace industry are the Levers, lace curtain, plain net (all based on Heathcoat's invention, with Levers's improvements), and warp lace (an adaptation of the knitting machine). A German machine for making embroidered net and lace is used to a limited extent, and also the Barmen machine, of mixed German and French origin, producing a clever imitation of handmade lace. The product of the machine, being in a crude brown state, must be bleached and otherwise treated to render it fit for the consumer. These various processes closely followed in development the making of lace. Samuel Hall, of Nottingham, patented certain devices during several years, beginning with 1817, which are essentially those used to-day.

A GREAT NUMBER DEPENDENT ON THE INDUSTRY.

About 6,000 people are employed in the lace factories of Nottingham and immediate vicinity; in the bleaching and finishing processes, distinct from the factory work, probably 20,000 more are employed—the number being a variable quantity, dependent upon the state of the trade. The number directly dependent on the lace industry is estimated at 50,000, and the number indirectly dependent thereon is probably 125,000—half the town's population. At least 600 firms are engaged in the industry in this city, in making, finishing, or marketing lace. A few combine the three, most of them both finish and sell, while a comparative few deal in the finished article only. The number of firms weaving lace is 135. The annual output of the largest factory is worth about $1,000,000, and of an average factory about $250,000.

Many of the lace factories are in the city limits, but the present tendency is to place new ones in adjacent villages, where land and labor are cheaper. The finishing processes, however, are confined to the city, on account of the better facilities and because trade is expedited by bunching close together the firms engaged therein. As a rule, lace factories are not occupied by one firm alone, but are let somewhat like tenement houses. Thus, there may be one firm or more on each floor, or one firm may have two or three floors. The rent covers all tenement expenses except lighting and insurance. Wages of factory hands range from $4 to $20 a week, depending on the skill or knowledge required. Their mode of living is much like that of other working people, though they dress rather more smartly, owing perhaps to the influence of their artistic trade. To this influence is also possibly due the fact that lace makers are notable gardeners. Many of them rent plots in the city allotment gardens, where they pass much of their spare time in cultivating flowers, fruits, and vegetables. [The consul's historical details of the establishment of lace making in Nottingham are filed for public reference at the Bureau of Manufactures.]

GERMANY.

[By Consul Carl Bailey Hurst, Plauen.]

The laces made here are known as "burned-out" or etched laces, which are laces embroidered on a thin woolen fabric. The animal wool is burned out by immersion in a chemical bath that leaves the vegetable fiber lace unhurt. When silk laces are to be made they are embroidered upon a vegetable fabric, which is generally removed by passing rapidly over gas flames, leaving the silk web uninjured.

The production of laces has increased enormously, and the life and wealth of the whole place is centered in the lace industry, which has almost a monopoly for etched laces. Some 5,000,000 designs of laces are supposed to have been carried out on the looms of this place, and the number is rapidly increasing. Every effort is made by Government and municipal aid to foster and improve the industry. There is a famous textile school here, where designers are thoroughly trained.

Due entirely to the tremendous growth of the machine-made lace industry, the city itself may be said to be dependent upon this article for its present commercial importance. To-day it has a population of over 110,000; less than fifteen years ago it numbered 50,000; and not many years before that it had not more than 20,000.

FACTORIES AND EMPLOYEES—EXTENT OF THE BUSINESS.

There are about 350 lace-manufacturing firms and 100 more in the surrounding smaller towns. There are probably not less than 30,000 employees directly engaged in the lace business, and, while some of the large factories have a world-wide reputation, there are many smaller ones, having only a few persons engaged. Buyers come from all over the globe to select for the great import houses. A number of the larger firms of Plauen have in turn their own agents traveling in every civilized country, as well as in some that are not so recognized.

The largest purchasers are England, France, and the United States, the latter having imported during the past year nearly $5,000,000 worth of Plauen laces, on which the United States collected about $3,000,000 in customs duties. Canada, Mexico, and South America

are also large buyers, while some $20,000,000 worth of Plauen laces and embroideries were exported to all countries from Plauen in 1906.

At the caprice of fashion, the lace business is a very delicate one. Only limited stocks can be kept along staple lines, otherwise a change of vogue would render them unsalable.

WAGES OF THE OPERATIVES.

The wages paid to employees are small, according to American standards. While the many girls and women employed in the factories could earn as much in domestic service, they prefer the freedom and independence of factory life. Fifteen marks ($3.57) a week is considered good pay, and nearly all wages are reckoned according to the amount of work done.

Stitchers are always men, who sit at the left of the looms and guide the so-called pantograph over a six-fold enlarged pattern on which the stitches are outlined. The loom responds instantly to every movement of the pantograph, and the stitcher is paid according to the number of stitches taken. Quick and experienced operatives receive, sometimes, $20 a week.

Most of the cutting off and fastening of threads is done at home by children and women, who can be seen by the score sitting on the doorsteps and all about outdoors at work with scissors and thread, surrounded by masses of delicate lace, or carrying through the streets their bundles of laces to and from the factories.

With the highly developed machinery, all the fine, hand-made laces can be copied with marvelous accuracy, including Venetian point, Irish, Cluny, Brussels, and many others, as well as muslin embroideries and edgings of all sorts.

BELGIUM.

[By CONSUL-GENERAL ETHELBERT WATTS, BRUSSELS.]

Out of a total of 45,500 lace makers in Belgium, West Flanders has 25,500 and East Flanders 18,200. The art of lace making is still much followed among the Flemish population, who have shown great skill in all kinds of needlework. In certain districts it may be said that all women, young and old, handle the bobbin or the needle, and where the manufacture of lace has fallen back before the invasion of other industries it still possesses a certain popularity.

Lace is made at home, almost always by women, and is sold through local middlemen, who alone deal with the lace maker and who supply the so-called manufacturers or contractors. The lace makers work, as a rule, to order and by contract, and are paid by the piece. They reside mainly in the different villages of the provinces of Flanders, while the contractors are located in Ghent, Bruges, and especially Brussels.

Lace is divided into point and pillow lace, the latter so called on account of being made on pillows or cushions. Three essential agents cooperate in the manufacture: First, the commercial contractor or manufacturer, who centralizes the production of certain articles, for which he has received orders or the sale of which he foresees, which are almost entirely manufactured outside of his premises. He distributes his orders among his middlemen, and rarely supplies raw material. Second, the middleman or party who is between the lace maker and the commercial contractor, being sometimes an agent and sometimes a representative of a convent. Third, the lace maker, who works at home and never comes in contact with the manufacturer for whom she works. She receives her designs and pay from the intermediary agent.

EARNINGS OF THE LACE MAKERS—FUTURE OF THE INDUSTRY.

The majority of the lace makers earn from 50 to 85 centimes (about 10 to 17 cents) a day. Exceptionally good workers earn 1 franc (about 20 cents), and expert workers (of whom there are only 10 or 12 out of 15,000), 2 francs (38.6 cents) a day, for no matter what kind of lace.

The mother sometimes initiates her daughter in the manufacture *of lace,* which she has practiced herself from childhood, but as a

general rule no longer teaches the latter the trade, but sends her to the neighboring lace-making school, where the child is taught to make the lace she prefers. There are 160 schools for lace making and embroidering on tulle in Belgium, of which three-fourths are managed by nuns of the Roman Catholic Church.

Notwithstanding the success which Brussels lace has had, the future of the industry does not appear bright. Every year the number of lace makers decreases to an alarming extent. Events of an economical character, fashion, competition of the numerous mechanical imitations, especially those of Venice, of Chantilly, and of Valenciennes, and the defective commercial organization of the lace industry, have contributed to harm it. Owing to the system of intermediary agents, by which some agents grow rich and the lace maker receives barely sufficient wages to keep soul and body together, the trade is yearly becoming less and less popular, and lace makers are beginning to take up more profitable occupations.

There are about 191 firms engaged in the lace business in Brussels, but no statistics are available showing either the number of persons employed in the lace industry or the production of lace.

The exportation of lace from Belgium for 1905 amounted to $1,278,627, and for 1906 to $1,455,600. The exportation of lace from Brussels to the United States amounted to $214,944 in 1905 and $310,654 in 1906.

BRITISH INDIA.

[By CONSUL-GENERAL W. H. MICHAEL, CALCUTTA.]

The declared value of chikon embroideries exported from Calcutta to the United States during the calendar year 1906 was $42,072. The value of shipments to other countries is not stated, but I learn from the men engaged in collecting and exporting chikon embroideries that America takes two-thirds of all shipped from Calcutta. As most of this work is done in Bengal it is probably within bounds to say that two-thirds of all chikon work exported from India goes to the United States under invoices issued from this consulate-general.

The lists and samples of chikon embroidery brought for inspection, with a view to invoicing shipments, are generally comprised of handkerchiefs, made of fine mull, waists, pillowcases, pincushions, infants' robes, children's frocks, pillow shams, bureau covers, pillow covers, tablecloths, tray cloths, silk gowns, sheets for bed covers, petticoats, strips of embroidery, mull petticoats, piano covers, ladies' underwear, centerpieces, etc. The silk dresses are generally of China silk, and the work, while not equal to the embroidery on silk done in Japan, is tastefully executed and the designs, while monotonous, are quite effective. Patterns in four and five breadths, 27 inches wide, are made and sold here at 15 to 20 rupees (rupee, 32.34 cents). Most of the embroidering on silk is done by men. The same kind of work on mull of suitable fineness and strength is done by men and women for 9 to 12 rupees.

Some of the most effective work of this kind done in Bengal is known as "bed sheets." These are simply bed spreads 9 feet long by 6 feet wide, on either cotton or linen, seldom the latter. These spreads are elaborately embroidered and sell for 10 to 20 rupees.

PRICES OF THE CHIKON WORK.

The cheapest handkerchiefs for ladies made of mull sell for 1 rupee 2 annas per dozen (anna, 2 cents), and the highest priced ones at 6 rupees per dozen; mull waists at 2 rupees 2 annas each; pillowcases, 7 rupees per dozen; pincushion covers at 2 rupees 4 annas per dozen; infants' robes, 2 rupees 8 annas; bureau covers, 2 rupees a pair; tablecloths, 6 by 8, 6 rupees each; mull gowns, 16 rupees each; pillow shams, 6 rupees per pair. These are the invoice prices, which are market quotations so far as it is possible to ascertain on days of shipment.

The men and women who do the chikon work receive very little for their labor. An article that requires six days to make, the artisan working ten and twelve hours a day, sells for less than a dollar, and out of this the man or woman whose toil produced the article receives, perhaps, less than 33 cents. Most of the chikon work is done when work on the farm is slack, yet some chikon work is done all the year round. The man who buys from the producers of chikon work spends sometimes six months or a whole year assembling enough of the goods to make up an invoice, which generally fills a medium-size dry-goods box. The articles are sent to Philadelphia, Charleston, New Orleans, and occasionally to New York. The buyers are natives of India who are very often relatives of the men who export the goods. The stores at the points named supply Indian dealers who offer the goods for sale at nearly all summer resorts. These dealers may be seen at Atlantic City and other places squatted on the floor with their chikon work and some Indian jewelry spread out in the most attractive manner. [Photographs of chikon work forwarded by Mr. Michael are filed for public reference at the Bureau of Manufactures.]

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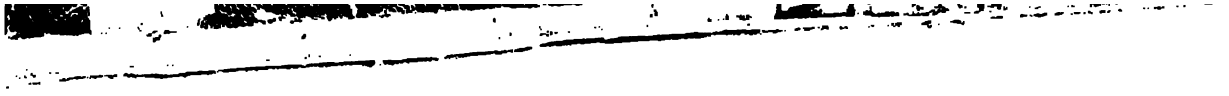

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